# START

SOL
MN05516
FBA

Microfilmed 1995

Florida Collection
State Library of Florida

as part of the

SOLINET/ASERL
Cooperative Preservation
Microfilming Project 3

Funded in part by the
National Endowment
for the Humanities

Reproductions may not be made without permission from State Library of Florida

## COPYRIGHT

The copyright law of the United States - Title 17, United States Code - concerns the making of photocopies or other reproductions of copyrighted material.

Under certain conditions specified in the law, libraries and archives are authorized to furnish a photocopy or other reproduction. One of these specified conditions is that the photocopy or reproduction is not to be "used for any purpose other than private study, scholarship, or research." If a user makes a request for, or later uses, a photocopy or reproduction for purposes in excess of "fair use," that user may be liable for copyright infringement.

This institution reserves the right to refuse to accept a copy order if, in its judgement, fulfillment of the order would involve violation of the copyright law.

Florida. State
Board of Health

Annual report -
State Board of
Health

Jacksonville,
Fla.: State
Board of Health

## Bibliographic Record Target

**SOL MNO** 5516 FBA

```
OCLC:  33939477           Rec stat:    n
Entered:    19951219      Replaced:    19951219      Used:    19951219
Type:      a      Bib lvl: s        Source:    d        Lang:      eng
Repr:      a      Enc lvl: K        Govt pub:  s        Ctry:      flu
Phys med:         Mod rec:          Conf pub:  0        Cont:      ^^^^
S/L ent:   0      Ser tp:  p        Frequn:    a        Alphabt:   a
Desc:      a                        Regulr:    r        ISDS:
                                    Pub st:    d        Dates:     1890-1968
   1  040      FBA |c FBA
   2  007      h |b d |d a |e f |f a--- |g b |h a |i c |j p
   3  007      h |b d |d b |e f |f a--- |g b |h a |i b |j p
   4  007      h |b d |d b |e f |f a--- |g b |h a |i a |j p
   5  037      |b Florida Collection, State Library of Florida, R.A. Gray
Bldg., 500 S. Bronough St., Tallahassee, Fla. 32399-0250
   6  092      614.2s |b H4
   7  049 00   FBAG
   8  110 1    Florida. |b State Board of Health.
   9  245 10   Annual report - State Board of Health, State of Florida |h
[microform]
  10  246 03   Annual report |f 18<93/94>-1920, 1923-<, 1968>
  11  246 03   Biennial report |f 1921/22
  12  260      Jacksonville, Fla. : |b State Board of Health,
  13  300      v. : |b ill., ports. ; |c 23-29 cm.
  14  310      Annual
  15  362 0    1st (1889/90)-
  16  500      Reports for 1910-<17> issued as its Publication.
  17  515      Report year for 1893/94 ends Mar. 31; for 189<7>-1968, Dec. 31.
  18  515      Reports for 1923-32 combined in one issue.
  19  580      Reports for 1909-12 include: Florida health notes, ISSN 0015-
4105, v. 4-7.
  20  533      Microfilm. |m 1889/90-1907, 1909-1950. |b Atlanta, Ga. : |c TO
BE FILMED BY SOLINET, |d 1995. |e - microfilm reel- ; 35 mm. |f (SOLINET/ASERL
Cooperative Microfilming Project (NEH PS-21089) ; SOL MN0----.-- FBA)
  21  539      d |b 1889 |c 1950 |d gau |e u |f u |g a
  22  590      BRIEF.
  23  500      Library lacking: 1908.
  24  500      Reel ---- (1889/90- ----) ; reel ----
  25  610 10   Florida. |b State Board of Health |x Periodicals.
  26  650  0   Public health |z Florida |x Periodicals.
  27  710 1    Florida. |b State Board of Health. |t Biennial report.
  28  760 1    Florida. State Board of Health. |t Publication
  29  777 1    |t Florida health notes |x 0015-4105 |g 1909-12
  30  785 00   |t Annual report - Division of Health, Department of Health and
Rehabilitative Services, State of Florida |x 0148-1894
  31  776 0    |c Original |w (OCoLC)01569394
  32  810 1    Florida. |b State Board of Health. |t Publication.
```

---

### Technical Microfilm Data

**Microfilmed by**
**Preservation Resources**
**Bethlehem, PA**

**on behalf of**
**SOLINET/ASERL**
**Atlanta, GA**

---

**Film Size:** **35mm Microfilm**

**Reduction Ratio:** 12 **X**

**Image Placement:** IA [✓ IIA] IB IIB

**Date Filming Began:** April 18, 1996

**Camera Operator:** Carmen Trinidad

# GUIDE TO CONTENTS

---

SOLINET/ASERL
Cooperative Preservation
Microfilming Project

---

Author: Florida. State Board of Health

---

Title: Annual report - State Boart of Health, Page 1 of 1
***State of Florida***

---

***Inclusive Volumes*** ***Inclusive Years***
***1890-1950***

---

| ***Reel*** | ***Volume*** | ***Reel*** | ***Volume*** |
|---|---|---|---|
| ***5512*** | ***1890*** | ***5514*** | ***1915*** |
| | ***1891*** | | ***1916*** |
| | ***1892*** | | ***1917*** |
| | ***1893*** | | ***1918*** |
| | ***1894*** | | ***1919*** |
| | ***1895*** | | ***1920*** |
| | ***1895 and 1896*** | | ***1921-1922*** |
| | ***1897*** | | |
| | ***1899*** | ***5515*** | ***1923-1932*** |
| | ***1900*** | | ***1933*** |
| | ***1901*** | | ***1934*** |
| | ***1902*** | | ***1935*** |
| | ***1903*** | | ***1936*** |
| | ***1904*** | | ***1937*** |
| | ***1905*** | | ***1938*** |
| | ***1906 (17th)*** | | ***1939*** |
| | ***1906 (18th)*** | | ***1940*** |
| ***5513*** | ***1907*** | ***5516*** | ***1941*** |
| | ***1909*** | | ***1942*** |
| | ***1910*** | | ***1943*** |
| | ***1911*** | | ***1944*** |
| | ***1913*** | | ***1945*** |
| | ***1913*** | | ***1946*** |
| | ***1914*** | | ***1947*** |
| | | | ***1948*** |
| | | | ***1949*** |
| | | | ***1950*** |

***WANTING***

---

***1908***

---

***NOTES:***

---

---

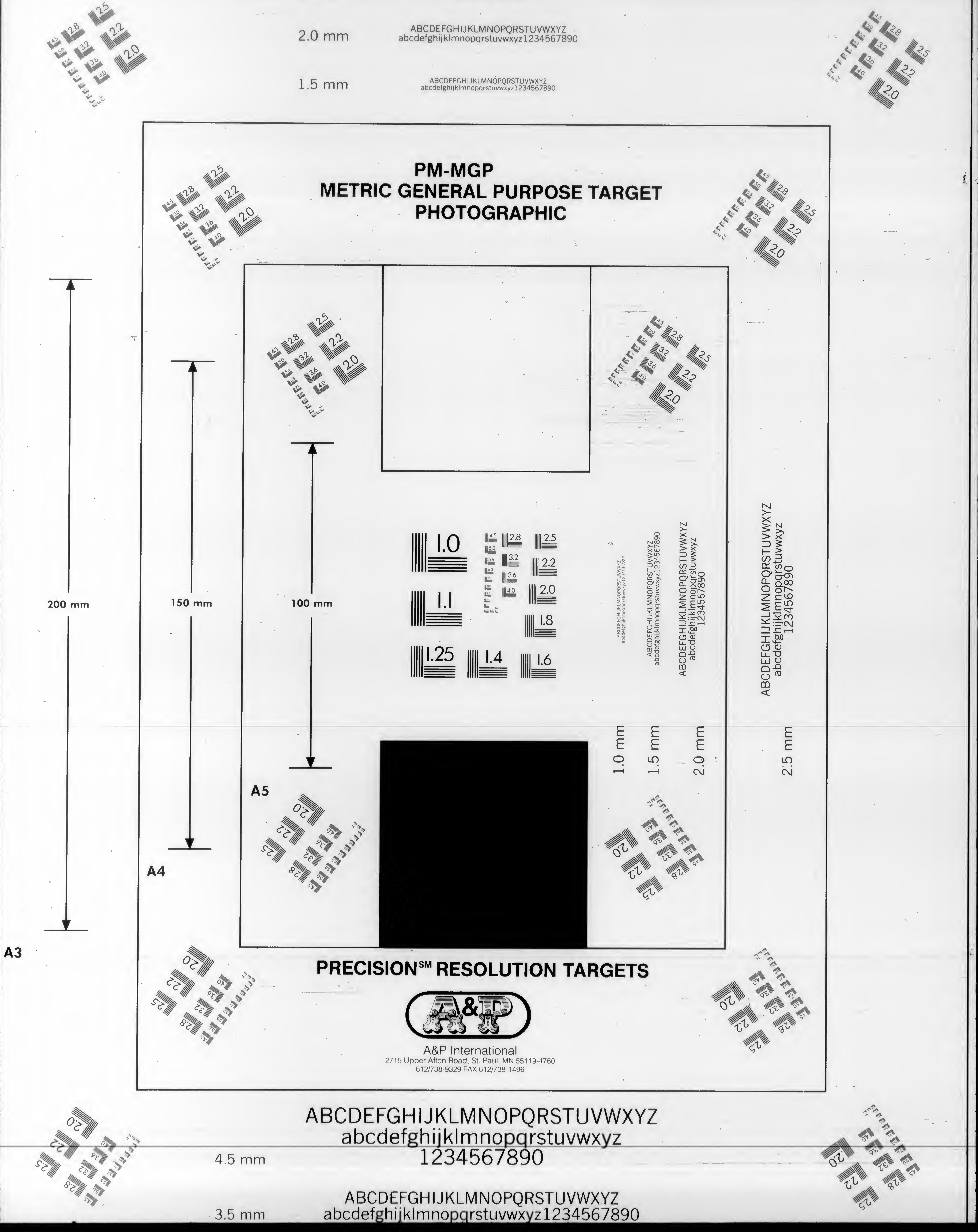
***ISSUES ARE LISTED AS MISSING WHEN ORIGINALLY FILMED. IF ISSUES ARE LOCATED AT A LATER DATE, THEY MAY BE INCLUDED AT THE END OF THE APPROPRIATE REEL.***

REEL 5516
1941-1950

2.0 mm ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz1234567890

1.5 mm ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz1234567890

# PM-MGP
# METRIC GENERAL PURPOSE TARGET
# PHOTOGRAPHIC



1.0 mm ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz1234567890

1.5 mm ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz1234567890

2.0 mm ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890

2.5 mm ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890

## PRECISION℠ RESOLUTION TARGETS

A&P

A&P International
2715 Upper Afton Road, St. Paul, MN 55119-4760
612/738-9329 FAX 612/738-1496

4.5 mm ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890

3.5 mm ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz1234567890

# 1941

FLORIDA STATE LIBRARY

STATE OF FLORIDA

# Forty-Second Annual Report

of the

# STATE BOARD OF HEALTH

for the

YEAR ENDING DECEMBER 31, 1941

W. H. PICKETT, M.D.
Florida State Health Officer

FLORIDA STATE BOARD OF HEALTH
Jacksonville, Florida
1942

F614.2
H4

STATE OF FLORIDA

# Forty-Second Annual Report

of the

# STATE BOARD OF HEALTH

for the

YEAR ENDING DECEMBER 31, 1941

W. H. PICKETT, M.D.
Florida State Health Officer

FLORIDA STATE BOARD OF HEALTH
Jacksonville, Florida
1942

*His Excellency,* SPESSARD L. HOLLAND
Governor of Florida
Tallahassee, Florida

SIR:

I beg to hand you herewith a report of the Florida State Board of Health for the period of January 1, 1941 to December 31, 1941, inclusive.

Respectfully submitted,

HERBERT L. BRYANS, M. D., *President*

Jacksonville, Florida
September 1, 1942

*The Honorable* HERBERT L. BRYANS, M. D., *President*
Florida State Board of Health
Jacksonville, Florida

DEAR DR. BRYANS:

I herewith submit the forty-second annual report of the Florida State Board of Health for the year ending December 31, 1941.

The work of the State Board of Health for the year 1941 was under the direction of Dr. W. H. Pickett.

Respectfully submitted,

HENRY HANSON, M. D.
*State Health Officer*

Jacksonville, Florida
September 1, 1942

# TABLE OF CONTENTS

EPIDEMIOLOGY . . . . . . . . . . 1
TUBERCULOSIS . . . . . . . . . . 5
VENEREAL DISEASE CONTROL . . . . . . . 9
MALARIA CONTROL . . . . . . . . . 22
MATERNAL AND CHILD HEALTH . . . . . . . 97
DENTAL HEALTH . . . . . . . . . 109
PUBLIC HEALTH NURSING . . . . . . . . 113
LOCAL HEALTH SERVICE . . . . . . . . 116
MALARIA RESEARCH . . . . . . . . . 124
SANITARY ENGINEERING . . . . . . . . 130
VITAL STATISTICS . . . . . . . . . 157
ACCOUNTING . . . . . . . . . . 159
NARCOTICS . . . . . . . . . . 162
LABORATORIES . . . . . . . . . . 164
HEALTH EDUCATION . . . . . . . . . 199

# EPIDEMIOLOGY

HARRY B. SMITH, M.D., *Director*

During the year under consideration two outbreaks of communicable diseases occurred in the state which reached epidemics of minor proportions, an outbreak of typhoid fever and an outbreak of poliomyelitis. The former was limited to the east coast of the state while the latter was more or less statewide in scope.

The epidemic of typhoid, which received detailed study by this Bureau, was directly traceable to the consumption of oysters from unapproved sources. These cases occurred in communities along the Indian and Halifax rivers; Daytona Beach reporting 4 cases, Vero Beach 8, and Fort Pierce 3, making a total of 15 cases. Each of the cases in Daytona Beach gave a history of ingestion of raw oysters within three weeks of onset of illness. In every instance, the oysters were taken from unapproved areas of the Halifax River where sewage pollution is particularly heavy.

All of the Vero Beach cases, as in the case of the Daytona Beach cases, gave a history of ingestion of raw oysters taken from unapproved areas of the Indian River. Investigation of these cases revealed that the oysters responsible for the outbreak were harvested within a few feet of the Vero Beach sewer outlet by an individual who was not licensed to engage in the oyster business. Further investigation of this man's activities revealed the fact that the oysters so harvested were distributed by vendors in Vero Beach by house to house canvass.

The three Fort Pierce cases all gave a history of having consumed raw oysters which were purchased from this same Vero Beach vendor.

A thorough investigation was made of this outbreak by both the Bureau of Epidemiology and the Bureau of Sanitary Engineering and the necessity for proper and adequate posting of all waters not approved for the harvesting of oysters was emphasized. It is understood that the Bureau of Sanitary Engineering has printed a supply of metal posters which are not easily defaced or mutilated and has posted areas from which oysters were taken that caused this outbreak.

The infantile paralysis outbreak began in the last month of 1940 and reached a peak in July of 1941. A total of 263 cases was reported for the entire year of 1941. These may be listed by counties as follows:

TABLE 1.—POLIOMYELITIS CASES BY COUNTIES FOR THE YEAR 1941.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Alachua | 17 | Duval | 51 | Jefferson | 1 | Nassau | 2 | Sarasota | 1 |
| Baker | 1 | Escambia | 48 | Lafayette | 1 | Orange | 10 | Seminole | 1 |
| Bay | 5 | Gadsden | 1 | Lake | 3 | Osceola | 1 | Suwannee | 3 |
| Broward | 5 | Glades | 1 | Leon | 10 | Palm Beach | 5 | Taylor | 2 |
| Citrus | 1 | Highlands | 1 | Levy | 1 | Pinellas | 3 | Volusia | 9 |
| Clay | 3 | Hillsborough | 7 | Liberty | 1 | Polk | 11 | | |
| Columbia | 2 | Holmes | 1 | Manatee | 1 | Putnam | 1 | | |
| Dade | 48 | Jackson | 1 | Monroe | 1 | St. Johns | 2 | | |

As will be noted from the tabulation by age groups, poliomyelitis is decidedly a disease of childhood with approximately 65 per cent of the cases occurring in children under 10 years of age and approximately 90 per cent in children under 15 years of age.

TABLE 2.—REPORTED CASES OF COMMUNICABLE DISEASES CLASSIFIED ACCORDING TO AGE, SEX AND COLOR

DIPHTHERIA

| Age Group | White | | Colored | | Tot'ls |
|---|---|---|---|---|---|
| | M. | F. | M. | F | |
| 0 to 4 | 31 | 42 | 4 | 5 | 82 |
| 5 to 9 | 25 | 26 | 6 | 6 | 63 |
| 10 to 14 | 4 | 6 | 1 | 0 | 11 |
| 15 to 19 | 3 | 3 | 0 | 0 | 6 |
| 20 to 29 | 6 | 8 | 2 | 1 | 17 |
| 30 to 39 | 1 | 3 | 0 | 0 | 4 |
| 40 to 49 | 1 | 3 | 0 | 0 | 4 |
| 50 to 59 | 0 | 1 | 1 | 0 | 2 |
| 60 to 69 | 1 | 0 | 0 | 1 | 2 |
| 70 and over | 0 | 1 | 0 | 1 | 2 |
| Age, Sex and Color not given | | | | | 19 |
| Grand Total | | | | | 212 |

POLIOMYELITIS

| Age Group | White | | Colored | | Tot'ls |
|---|---|---|---|---|---|
| | M. | F. | M. | F | |
| 0 to 4 | 42 | 49 | 10 | 6 | 107 |
| 5 to 9 | 31 | 21 | 4 | 4 | 60 |
| 10 to 14 | 24 | 22 | 2 | 0 | 48 |
| 15 to 19 | 12 | 6 | 2 | 1 | 21 |
| 20 to 29 | 5 | 3 | 0 | 0 | 8 |
| 30 to 39 | 4 | 4 | 0 | 0 | 8 |
| 40 to 49 | 2 | 0 | 0 | 0 | 2 |
| 50 to 59 | 0 | 0 | 0 | 0 | 0 |
| 60 to 69 | 0 | 0 | 0 | 0 | 0 |
| 70 and over | 0 | 0 | 0 | 0 | 0 |
| Age, Sex and Color not given | | | | | 9 |
| Grand Total | | | | | 263 |

During the year sporadic cases of the various communicable diseases occurred throughout the state but with the exception of the outbreaks of typhoid and poliomyelitis previously mentioned, there was no threat of an epidemic.

For the first time in the history of the Bureau, a register of typhoid carriers was set up and a concerted effort is being made to locate carriers through investigation of sporadic cases and outbreaks of typhoid fever and through the requirement of at least two negative specimens of feces and urine before clinical cases of typhoid fever are released from isolation. During the year 7 residents of the state were found to be chronic carriers and their names placed on the carrier list. All typhoid carriers so registered during the year were visited by the health officer at quarterly intervals to see that the carriers were living at the same address and were not handling food.

TABLE 3. — CASES OF COMMUNICABLE DISEASES REPORTED BY MONTHS FOR THE YEAR 1941.

| DISEASE | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Diphtheria | 19 | 18 | 22 | 8 | 11 | 7 | 12 | 3 | 32 | 26 | 28 | 26 | 212 |
| Poliomyelitis | 12 | 5 | 13 | 12 | 21 | 44 | 66 | 48 | 23 | 17 | 2 | 0 | 263 |
| Scarlet Fever | 22 | 23 | 24 | 15 | 8 | 7 | 7 | 10 | 19 | 25 | 23 | 22 | 205 |
| Typhoid Fever | 2 | 5 | 25 | 18 | 22 | 22 | 21 | 24 | 9 | 8 | 5 | 5 | 166 |
| Typhus Fever | 6 | 6 | 12 | 8 | 14 | 20 | 23 | 29 | 33 | 18 | 17 | 10 | 196 |
| Undulant Fever | 2 | 0 | 4 | 2 | 0 | 2 | 3 | 0 | 4 | 2 | 2 | 0 | 21 |
| Paratyphoid | 1 | 0 | 0 | 1 | 1 | 3 | 0 | 1 | 5 | 1 | 1 | 3 | 17 |
| Malaria | 6 | 2 | 6 | 11 | 15 | 16 | 13 | 25 | 13 | 20 | 11 | 7 | 145 |
| Measles | 22 | 234 | 4218 | 3998 | 2187 | 381 | 51 | 47 | 13 | 15 | 31 | 64 | 11261 |
| Tuberculosis | 61 | 90 | 104 | 69 | 82 | 64 | 76 | 104 | 81 | 66 | 103 | 81 | 981 |
| Whooping Cough | 35 | 32 | 84 | 74 | 115 | 51 | 51 | 91 | 57 | 55 | 59 | 43 | 747 |
| Influenza | 1132 | 946 | 720 | 558 | 159 | 42 | 58 | 37 | 29 | 72 | 32 | 47 | 3832 |

For many years health workers in this state have felt the need for a Sanitary Code embodying rules and regulations for the control of the communicable diseases based upon standardized and accepted procedures and practices. During the year such a Sanitary Code was drafted and at the end of the year was in the hands of the printer. This Sanitary Code will soon be distributed to health officers and physicians throughout the state.

At the beginning of the year the Bureau was badly in need of a more adequate system of record keeping. A cross index file was installed in the bureau making it possible to keep a permanent, and easily accessible, record of all of the cases of communicable diseases reported by counties. This file is so constructed that additional sections can be added as the need arises.

During the year the Bureau undertook to make a more detailed and complete investigation of reported cases of communicable disease. To this end a complete set of case records was drawn up to be used in making epidemiological field studies on the more important communicable diseases. The Bureau has endeavored, so far as personnel would permit, to make an investigation on all cases of typhoid fever occurring in the state so as to determine the source of the infection.

In order that a more comprehensive record of the activities of this Bureau might be available, detailed written report of field trips was required of all personnel upon the completion of each field visit. These visits are summarized at the end of each month, showing the work done by the personnel for that month.

At the beginning of the year the staff of the Bureau consisted of only the director. On February 15, the present director was appointed to direct the activities of the Bureau. At that time two assistants were added to the staff but unfortunately both had to be placed in charge of county health units upon a temporary basis because of the acute shortage of health officers to direct such units. Thus the Bureau operated for the greater part of the year with only a director and a secretary.

There is an urgent need for increased personnel in the Bureau in order that more complete and detailed epidemiological studies of the communicable diseases may be made. As soon as conditions will permit, it is urgently recommended that two assistant epidemiologists be added to the staff of the Bureau. There is also an urgent need for an additional clerk to serve as statistician in the Bureau.

The present quarters of the Bureau are much overcrowded and consideration should be given to the matter of providing more room in order that the Bureau may carry on its work in a more satisfactory manner.

# TUBERCULOSIS

Lynne E. Baker, M.D., *Director*

The personnel of the Division of Tuberculosis during 1941 consisted of a director, x-ray technician and a secretary. On July 1, 1941, Doctor A. J. Logie resigned to go into private practice and was replaced by the present director.

During the latter part of 1940 and the first part of 1941 a new x-ray mobile unit was developed by the former director of the Division of Tuberculosis and the x-ray technician. This unit was devised to x-ray large groups of people in the low income levels, making it possible to x-ray 400 people per day.

This new unit takes photographs of the fluorescent image of the chest on 35mm films. The miniature films are interpreted by the director of the Division of Tuberculosis. A report of the interpretation is sent to the director of the county health unit and to the private physician when designated by the person x-rayed.

No attempt is made by means of the miniature film to establish a definite, final diagnosis. Rather, the x-ray surveys are used as a screening process to detect cases that may have pulmonary tuberculosis. All cases whose films show some pathology are then referred to the local physician for further study, including a conventional 14″ x 17″ film, to establish a definite diagnosis.

During 1941 a total of 43,638 films were taken by the x-ray mobile unit. Of this number 38,128 (87.4%) were satisfactory for interpretation. Steps have been taken to increase the percentage of satisfactory films. By making changes in technique as well as in the x-ray equipment, the percentage of satisfactory films has gradually increased. This is shown in Table 1, which gives a summary of the results of all the films taken during 1941.

Another major difficulty to be corrected has been the periodic cessation of the x-ray program due to a break in some essential part of the equipment of the mobile x-ray unit, which often requires several days to be replaced. It is hoped that this may be partially eliminated by having the x-ray equipment inspected regularly each month by an expert from the x-ray company, who will replace all parts showing wear at the time of the inspection.

TABLE 1.—STATISTICS ON X-RAY FILMS TAKEN BY MOBILE X-RAY UNIT, 1941.

| DATE | COUNTY | Number Films Taken | Satis-factory Films | % Satis-factory Films | Films Interpreted as Negative | Films Showing Some Pathology | Films Suspicious of Pulmonary Tubercu-losis | Films Showing Enlarged Heart or Aorta | Films Showing Other Pathology |
|---|---|---|---|---|---|---|---|---|---|
| Feb. 10-26 | Levy-Gilchrist | 3853 | 3601 | 93.5 | 3456 | 145 | 52 | 89 | 4 |
| Mar. 3-8 | Taylor | 1436 | 1381 | 96.2 | 1329 | 52 | 14 | 37 | 1 |
| Mar. 10-11 | Indian River | 499 | 484 | 97.0 | 460 | 24 | 11 | 13 | 0 |
| Mar. 13-Apr. 5 | Leon | 4030 | 3675 | 91.2 | 3622 | 53 | 27 | 19 | 7 |
| Apr. 7-30 | Duval | 5419 | 3492 | 64.4 | 3343 | 149 | 73 | 72 | 4 |
| May 5-24 | Orange-Osceola | 2950 | 1996 | 67.7 | 1941 | 55 | 36 | 13 | 6 |
| May 26-June 6 | Broward | 958 | 575 | 60.0 | 534 | 41 | 29 | 9 | 3 |
| June 9-July 3 | Dade | 3994 | 3762 | 94.2 | 3592 | 170 | 90 | 68 | 12 |
| July 14-20 | Duval | 670 | 543 | 66.1 | 505 | 38 | 21 | 14 | 3 |
| Sept. 1 | Duval | 48 | 24 | 50.0 | 21 | 3 | 2 | 1 | 0 |
| Sept 2-6 | Highlands-Glades | 750 | 148 | 19.7 | 144 | 4 | 3 | 1 | 0 |
| Sept. 8 | Broward | 257 | 223 | 86.8 | 213 | 10 | 7 | 3 | 0 |
| Sept. 10-13 | Monroe | 280 | 263 | 93.9 | 250 | 13 | 9 | 4 | 0 |
| Sept. 16-25 | Migratory Camps | 1287 | 1212 | 94.2 | 1165 | 47 | 20 | 23 | 4 |
| Sept. 27-Oct. 1 | Polk | 2110 | 2011 | 95.3 | 1940 | 71 | 31 | 35 | 5 |
| Oct. 7-10 | Nassau | 1252 | 1161 | 92.7 | 1136 | 25 | 8 | 16 | 1 |
| Oct. 11-13 | Baker | 761 | 702 | 92.2 | 678 | 24 | 10 | 14 | 0 |
| Oct. 14 | Clay | 363 | 348 | 95.9 | 341 | 7 | 4 | 3 | 0 |
| Oct. 15 | Nassau | 417 | 391 | 93.8 | 383 | 8 | 6 | 1 | 1 |
| Oct. 16-18 | Hamilton | 905 | 881 | 97.3 | 831 | 50 | 27 | 17 | 6 |
| Oct. 21-24 | Gadsden | 715 | 678 | 94.8 | 638 | 40 | 20 | 17 | 3 |
| Oct. 27-31 | Jackson | 1511 | 1494 | 98.9 | 1432 | 62 | 25 | 27 | 10 |
| Nov. 3-6 | Bay | 1662 | 1648 | 99.2 | 1611 | 37 | 12 | 19 | 6 |
| Nov. 7-8 | Gulf | 446 | 443 | 99.3 | 432 | 11 | 1 | 9 | 1 |
| Nov. 10-12 | Franklin | 543 | 540 | 99.4 | 528 | 12 | 5 | 7 | 0 |
| Nov. 13-14 | Wakulla | 483 | 479 | 99.2 | 465 | 14 | 6 | 6 | 2 |
| Nov. 17-21 | Taylor | 2375 | 2332 | 98.2 | 2259 | 73 | 23 | 43 | 7 |
| Nov. 24-29 | Pinellas | 1317 | 1306 | 99.2 | 1258 | 48 | 14 | 29 | 5 |
| Dec. 1-3 | Hillsborough | 1026 | 1021 | 99.5 | 998 | 23 | 11 | 9 | 3 |
| Dec. 4 | Manatee | 273 | 273 | 100.0 | 270 | 3 | 0 | 1 | 2 |
| Dec. 5-6 | Pinellas | 544 | 542 | 99.6 | 522 | 20 | 9 | 7 | 4 |
| Dec. 8 | Glades | 54 | 54 | 100.0 | 54 | 0 | 0 | 0 | 0 |
| Dec. 11 | Lake | 227 | 225 | 99.1 | 213 | 12 | 4 | 8 | 0 |
| Dec. 19-20 | Gadsden | 223 | 220 | 98.7 | 200 | 20 | 13 | 7 | 0 |
|  | TOTALS | 43638 | 38128 |  | 36764 | 1364 | 623 | 641 | 100 |

Of the 38,128 satisfactory films taken during 1941, a summary of the interpretations is as follows:

| | | |
|---|---|---|
| 623 — | (1.6%) | Suspicious of pulmonary tuberculosis. |
| 641 — | (1.7%) | Pathology in the heart or aorta. |
| 100 — | (0.3%) | Other pathology. |

Unfortunately, all of the data is not yet available on the follow-up studies of the above cases, so it is impossible at this time to give the exact number of new cases of active pulmonary tuberculosis discovered by the mobile x-ray unit.

An analysis was made of the cost per film of the miniature films. The cost of the original equipment — $10,147.31 — was prorated over a five year period. To the operating expenses for 1941 was added the estimated portion of the director's and secretary's salary chargeable to the x-ray unit. This gave a cost per film, based on the 38,128 satisfactory films taken during 1941, of $.324. This figure includes the cost and development of the films, which is approximately $.02 each.

The emphasis of the case finding program has been shifted to the adult groups. In previous years the case-finding program among children resulted in the discovery of very few active cases of pulmonary tuberculosis. The results in Florida were similar to the findings in other states. An analysis of the deaths from tuberculosis in Florida reveals that less than 2% of the deaths occur in children under 15 years of age. Consequently, it was stressed that only children who were contacts or suspects should be included in the x-ray survey; and that by x-raying adults in the low income groups, a larger number of active cases of pulmonary tuberculosis could be detected.

A simple, concise card was developed for the recording of active cases of pulmonary tuberculosis in the county health unit. A similar card was printed to record suspects or contacts under observation.

Dr. R. D. Thompson, Superintendent and Medical Director of the State Tuberculosis Sanatorium, was again host to the Annual Tuberculosis Institute for Directors of County Health Units on December 2-3, 1941. This year the public health nurses were invited. Through the courtesy of the Florida Tuberculosis and Health Association, Dr. R. Alec Brown, supervisor of the Tuberculosis Control Section, State of Louisiana Department of Health, was the guest speaker. Unfortunately, all of the counties were not represented at this institute to hear the very inspiring talks on tuberculosis given by Dr. Brown, Dr. Thompson and others.

During the year cases of pulmonary tuberculosis found by the Selective Service System were reported to the State Board of Health. The directors of the county health units were notified of the cases from their respective counties, so that all rejectees who were found to have active pulmonary tuberculosis on re-examination could be hospitalized or isolated. In the counties having no health units, the state tuberculosis nurse consultant followed up these cases, urging each one to consult his physician for further study to determine if active pulmonary tuberculosis was present.

Throughout the year it was stressed that an x-ray film of the lungs should be included in the physical examination of school personnel. In the counties in which the county medical society so desired, these films were taken by the mobile x-ray unit.

Valuable assistance in coordinating all resources for the control of tuberculosis in Florida has been given by the Tuberculosis and Public Health Committee of the Florida Medical Association, the State Tuberculosis Sanatorium, the Florida Tuberculosis and Health Association and other official and volunteer agencies, as well as the private physicians throughout the state. The director is very appreciative of this fine cooperation.

# VENEREAL DISEASE CONTROL

L. C. GONZALEZ, M.D., M.P.H., *Director*

The year 1941 was a busy one for the Division of Venereal Disease Control. With the increased demand placed upon it as a result of the Selective Service Act and the additions, as well as the complete establishment of military camps, the problems of control created thereby necessitated readjustments in the program. Most of the main activities of the Division were concentrated in order to provide control facilities as effective as possible in those areas where military personnel are located. The suddenness and the frequency with which military camps were organized in the state created, and are still creating, serious administrative problems which are accentuated by the fact that the resources at hand are not sufficient to keep pace with them. Despite tremendous handicaps, the activities performed during the year 1941 have far surpassed those of any other year and are continuing to increase at a rapid rate.

With the advent of mobilization commercialized prostitution raised its ugly head and began to contribute serious obstacles to venereal disease control. This challenge was quickly met the earlier part of the year by instituting an intensive campaign for the repression of prostitution. The campaign was begun in the important military areas in the state with all available weapons at our command.

In the Jacksonville area repressive measures were challenged by the prostitutes who instituted an injunction suit against the State Board of Health. The suit was fought in court and ended with a favorable decision being granted to the State Board of Health. As a result of the court decision, rules and regulations re-enforcing the old ones, with addition of new ones, were formulated in cooperation with the Attorney General's office and approved by the State Board of Health. The campaign for the repression of prostitution still continues unabated and is meeting with a fair degree of success in the large cities.

One of our chief difficulties, that of providing adequate venereal disease control service throughout the state, is being gradually reduced. During the year, six new county health units were organized, making a total of thirty-two counties served with full time health services. Three other counties have signified their intention of having full time health units and are to establish such units the early part of 1942. Thus, half of the counties in the state have provided for venereal disease control. There remains the other half where venereal disease control service is not available, and the extent with which the Division can aid it, is to provide drugs and laboratory services to private physicians.

The age old question of financial insufficiency received considerable attention. A request of $75,000 for venereal disease control was made to the State Legislature. Although the amount requested was not granted, an increase of $12,000 over the previous appropriation was provided. This amounted to $50,000. We were fortunate to receive a larger share of federal funds and some local communities increased their appropriation for venereal disease control. Despite these increases, the funds available were not sufficient to keep pace with the increase in activities.

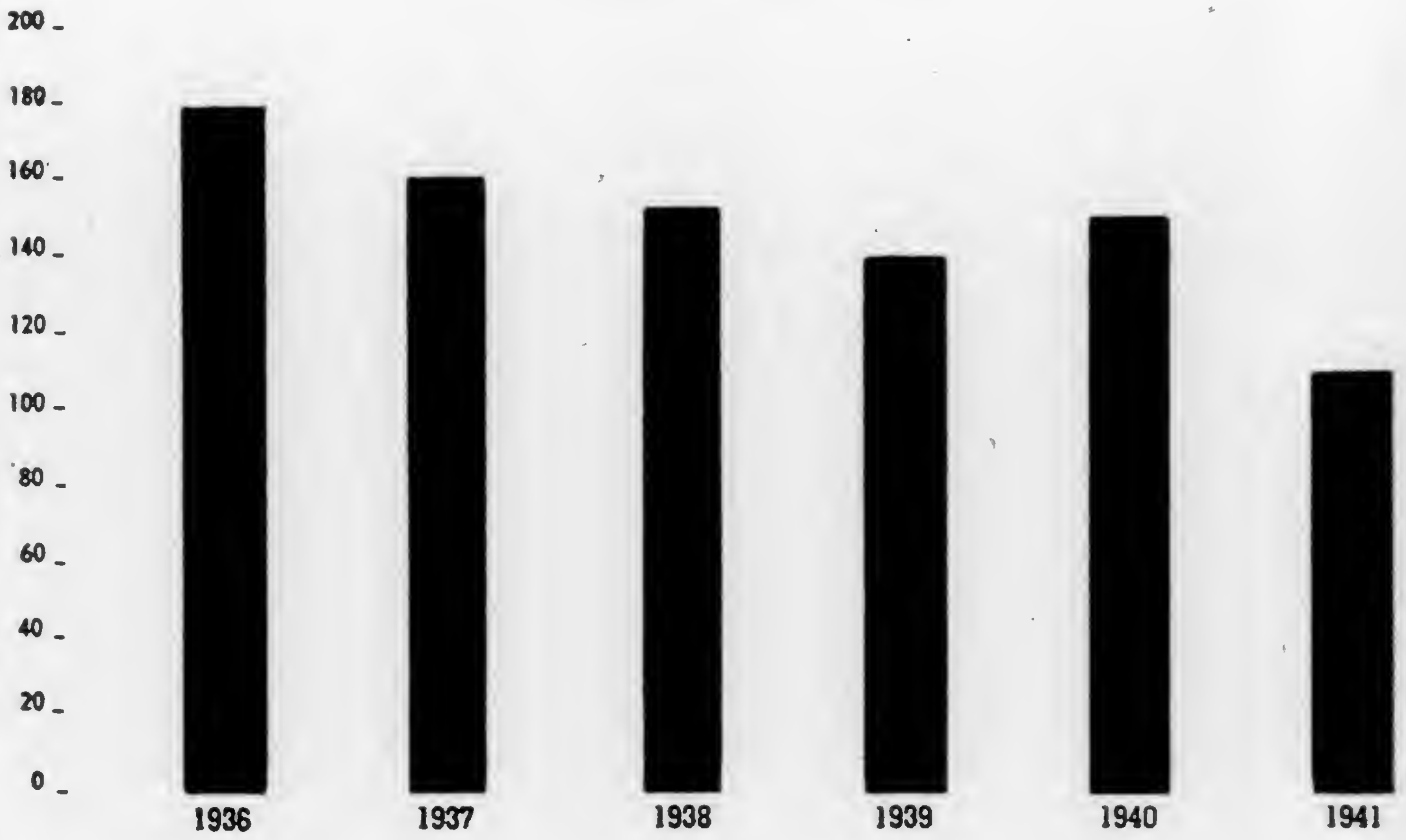
*Personnel* — The personnel consists of the following: Director, Assistant Director and Field Consultant, Nurse Consultant, one secretary, 2 senior clerks and 2 junior clerks.

*Administration* — There has been a marked expansion of administrative responsibilities. Besides performing routine duties of providing record forms, statistical information, promoting education, providing consultative service, as well as drugs and informational material to physicians, advising local health units and taking care of intra and interstate referral correspondence, the Division has assumed the added functions of compiling, reporting, and analyzing the statistical information received on the examination of selectees and volunteers, distributing containers and forms to local selective service boards, establishing close relations with the military, taking an active part in the campaign to repress prostitution and aiding in the establishment of new county health units. Due to the increased activities, the U. S. Public Health Service has assigned seven liaison officers to the state to perform venereal disease control duties around military areas.

A venereal disease control demonstration unit was organized in the city of Jacksonville. This unit was established January 1, 1941 with the express purpose of providing adequate venereal disease control in this important military area and to be used as an orientation center for the training of personnel in venereal disease control. Up to the present, three follow-up investigators and two physicians have been given orientation training. The unit is sponsored by the city of Jacksonville, county of Duval with state and federal participation.

*Diagnostic and Treatment Services* — At the beginning of 1940, there were eighty-seven public clinics for the treatment of venereal diseases. During the year 1941, the number of such clinics increased to 101. The total increase does not altogether reflect the increase in venereal disease control, as many small clinics were discontinued and were consolidated into one large clinic. Graph 1 comparatively illustrates the number of clinics

GRAPH 1. NUMBER OF CLINICS ORGANIZED BY YEAR
1937 - 1941 INCLUSIVE

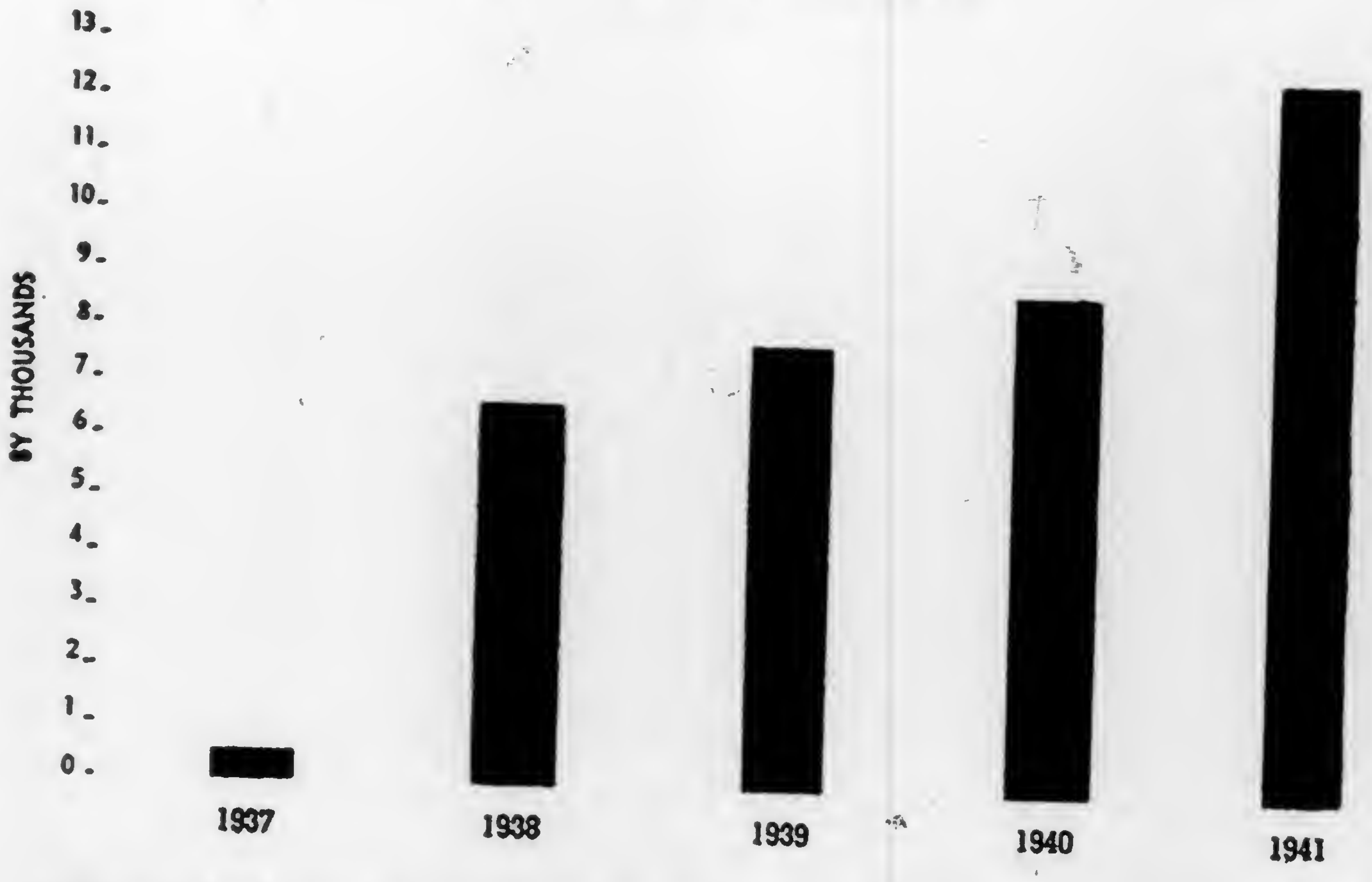


organized in the state since 1937. All the public health clinics in the state affiliated with county health units are organized with the full consent and cooperation of the local medical societies and in accordance with the program prepared by the venereal disease control committee of the Florida Medical Association and the State Board of Health. In all the clinics the services of the private physicians are being utilized to a maximum degree.

The increase in the venereal disease load is reflected in the monthly average number of patients treated for syphilis in all the clinics in the state. An average of 12,600 patients was treated monthly in all the clinics. As can be seen in Graph 2, this average has increased constantly, but in a more accelerating degree for 1941 than for the previous three years. Seven thousand fourteen new cases of syphilis who presumably were under treatment were also reported by private physicians. The number of patients who are, or have been, under treatment during the year, therefore, is close to 20,000.

From the beginning of the statewide venereal disease control program, the emphasis of venereal disease control has been placed on syphilis. There was to some extent some justification of this attitude three years ago, as there was little from a public health standpoint that could be offered public health officials in the control of gonorrhea. With the advent of

GRAPH 2. MONTHLY AVERAGE OF PATIENTS UNDER TREATMENT FOR SYPHILIS AT CLINICS, BY YEARS, 1937 - 1941 INCLUSIVE



sulfonamide drugs, the situation has markedly changed. It is possible now to attack gonorrhea with the same assurance as syphilis. Not only have we the weapons to attack gonorrhea, but also because of the present crisis gonorrhea has become the No. 1 venereal disease problem in our military area. Being cognizant of this situation, the Division has constantly stressed the necessity of concentrating a major share of the venereal disease control efforts on gonorrhea control. Our activity along this line admittedly began late in the year, but is rapidly gathering momentum. Table 1 illustrates the increase of cases of gonorrhea, as well as other venereal diseases reported in 1941 over 1940. While there has been a decrease in the reports of private physicians, the case load in clinics was more than doubled.

*Epidemiological Service* — There has been some material progress in the follow-up investigation of delinquent venereal disease patients and their contacts. Although additional personnel have been provided, particularly in military areas, the increased load created by the examination of selectees and the multiplicity of problems, of which prostitution is the major, arising as a result of the emergency, the increase in follow-up personnel and the stepping-up of their activity have not been able to cope with the situation with any degree of satisfaction. Only six counties have, besides the general nursing service, specialized venereal disease control epidemiologic service. These counties are Dade, Duval, Escambia, Hillsborough, Leon, and Orange. The other twenty-six counties utilize their general nursing service for venereal disease case finding and holding. It is to be noted that the most important military establishments are located within or near the above six counties.

TABLE 1.—NEW CASES OF GONORRHEA, OPHTHALMIA NEONATORUM, CHANCROID, GRANULOMA INGUINALE, AND LYMPHOGRANULOMA VENEREUM REPORTED ACCORDING TO SOURCE OF REFERENCE FOR STATE—1940-1941.

| | Gonorrhea | Ophthalmia Neonatorum | Chancroid | Granuloma Inguinale | Lymphogranuloma Venereum |
|---|---|---|---|---|---|
| — 1 9 4 0 — | | | | | |
| By Private Phys. | 721 | 10 | 15 | 6 | 5 |
| By Clinics ............ | 1,149 | 7 | 95 | 15 | 16 |
| TOTAL ........ | 1,870 | 17 | 110 | 21 | 21 |
| — 1 9 4 1 — | | | | | |
| By Private Phys. | 542 | 11 | 11 | 12 | 16 |
| By Clinics ............ | 2,542 | 2 | 143 | 64 | 33 |
| TOTAL ........ | 3,084 | 13 | 154 | 76 | 49 |

During the year, a total of 18,697 epidemiologic investigations were reported by all health departments and other clinics in the state, an increase of 31.4% over 1940. Table 2 demonstrates these investigations in terms of delinquency and contact investigations, as well as in terms of results achieved.

TABLE 2.—CASE HOLDING AND CASE FINDING REPORT OF ALL VENEREAL DISEASES BY SOURCE AND FOR THE STATE — 1941.

| TYPE of CLINICS | Number of Delinquencies | Delinquency Field Investigation | Delinquents Returned to Treatment | Contacts Investigated | Contacts Found Positive | Contacts Brought Under Treatment |
|---|---|---|---|---|---|---|
| Clinics of Full-Time Health Departments — (89) | 17,031 | 14,318 | 7,707 | 3,082 | 1,313 | 1,225 |
| Independent Clinics Reporting—(12) | 1,383 | 253 | 253 | 1,044 | 304 | 304 |
| Total | 18,414 | 14,571 | 7,960 | 4,126 | 1,617 | 1,529 |

Apparently individuals appearing voluntarily at clinics are included.

Out of 4,972 selectees found infected with syphilis as of December 31, 1941 from the thirty-two counties having full time health units a total of 3,426 or 70% have been investigated. Of the latter group 2,525 are under treatment. In the remaining 35 counties having no health units

2,494 selectees were found infected with syphilis for the same period of time. Of this number 222 or 9% were investigated and 188 of this group were brought under treatment at clinics. The contrast in epidemiologic investigations between organized and unorganized counties speak eloquently for the necessity of having full time health organizations to supervise the venereal disease control activities of a community.

*Cooperation with Armed Forces* — Numerous conferences were held with military officials, the majority of which were relative to the supression of prostitution in adjacent areas. One such conference was held in Panama City at the suggestion of the military commander of the station located in that city. The conference resulted in the passage of a city ordinance aimed against prostitution.

The State Board of Health, through the facilities of the Division, endeavors to cooperate at all times with the military authorities in the suppression of prostitution and in any other venereal disease control problem that may arise. All contacts of venereal diseases referred by the military personnel for investigation have been followed through in all areas where health services are available. It has been impossible in many instances to locate such contacts because the information given was meager, but local health units have devoted a large share of their venereal disease control services to investigating source contacts of infected military personnel.

During the middle of the year, a statewide meeting of all local health and law enforcement officials and military officers was called by the Chairman of the Health and Housing Committee of the State Defense Council for the expressed purpose of requesting the cooperation of all these officials to suppress prostitution. Many attended this conference and the provisions of the 8-point agreement relative to the control of venereal diseases adjacent to military areas were thoroughly discussed. Despite the stand taken by the Army, Navy and public health authorities to suppress prostitution, many localities have continued to tolerate prostitution.

*Educational and Information Activities* — The educational activities of the venereal disease control program are carried on by the Bureau of Education in conjunction with the Division. A more detailed description of these activities are found in the report of that Bureau. Mainly, the educational objectives were to provide factual information concerning venereal diseases through all educational media at our disposal, to aid communities in setting up venereal disease control services and to acquaint both lay and professional citizens of the facilities available in the State Board of Health.

During the month of June the venereal disease section, sponsored by the Division in the Annual Short Post-Graduate Course offered by the Florida Medical Association which was held in Jacksonville, was well attended by many physicians in the state. The Division also sponsored a venereal disease section in the Annual Negro Medical Seminar which was held in September. The majority of the Negro physicians in the state attended the seminar.

Four nurses and three physicians were sent for additional training at the St. Louis and Hot Springs short course venereal disease training centers.

At the legislative session which ended in June two independent premarital bills were introduced without the consultation of the Florida Medical Association and the State Board of Health. Both premarital bills were never brought up for a vote. A prenatal bill and a bill making it mandatory to instill silver nitrate in the eyes of newborn babies were also presented with the endorsement of the State Medical Association and the State Board of Health. Only the silver nitrate bill became a law. The prenatal bill was unfortunately defeated. Nevertheless, sentiment in favor of such a law is so great that there is no question that a similar bill will be enacted into law at the next session of the legislature.

*Laboratories* — Besides the normal increase in serologic examinations, the state laboratories have performed serologic tests on all selectees and volunteers called for examination. The latter produced such a tremendous load on the laboratories that laboratory personnel have had to work overtime and Sundays throughout the year. Despite the great increase in volume of work, neither the quality of the tests nor the efficiency of the laboratory has been sacrificed. The central laboratory has again been approved by the National Evaluation Study Committee. All branch state laboratories performing serologic tests are constantly checked with the central laboratory for efficiency.

Every blood serologic examination receives two independent tests, a Kahn standard and an Eagle diagnostic. Besides these routine tests, there

TABLE 3. — TYPE AND NUMBER OF EXAMINATIONS PERFORMED BY ALL THE STATE LABORATORIES IN 1941 WITH A COMPARISON OF SIMILAR EXAMINATIONS PERFORMED IN 1939 AND 1940.

| Type of Examination | Year | | |
|---|---|---|---|
| | 1939 | 1940 | 1941 |
| Blood Serology | 575,800 | 685,299 | 905,466 |
| Spinal Fluid | | 3,114 | 4,321 |
| Darkfield | | 250 | 417 |
| Gonorrhea Smears | 31,958 | 32,491 | 42,510 |
| Gonorrhea Cultures | | 97 | 1,731 |
| Chancroid | | 15 | 20 |
| Granuloma Inguinale | | | 15 |

has been a relative increase in quantitation requests. Other services offered by the laboratories are: spinal fluid examinations, darkfield examinations, gonorrhea smears, culture examinations and blood level determination of sulfonamides.

*Distribution of Drugs* — There has been a steady increase in the distribution of drugs to all sources. In July the policy of allowing local health departments to purchase drugs for their clinics was altered. During the latter half of the year, the Division took over the purchase of all drugs for all the local health departments, as well as for the distribution to private physicians, hospitals, and other institutions. It was felt that by centralizing the purchase and distribution of drugs not only would it materially be more efficient, but also because by one single agency having purchasing power, better bids on drugs could be obtained. This was proved by the fact that with the exception of mapharsen, the price of which is standardized, all the other drugs, including distilled water were obtained at a much cheaper price. It is estimated that over $2,000 has already been saved, since the centralization of the purchasing of drugs began. The marked increase in the dosage of drugs distributed this year is due in part to the addition of local health department requests, which, previous to July, were made independently. Two hundred sixty-two physicians requested drugs from the Division.

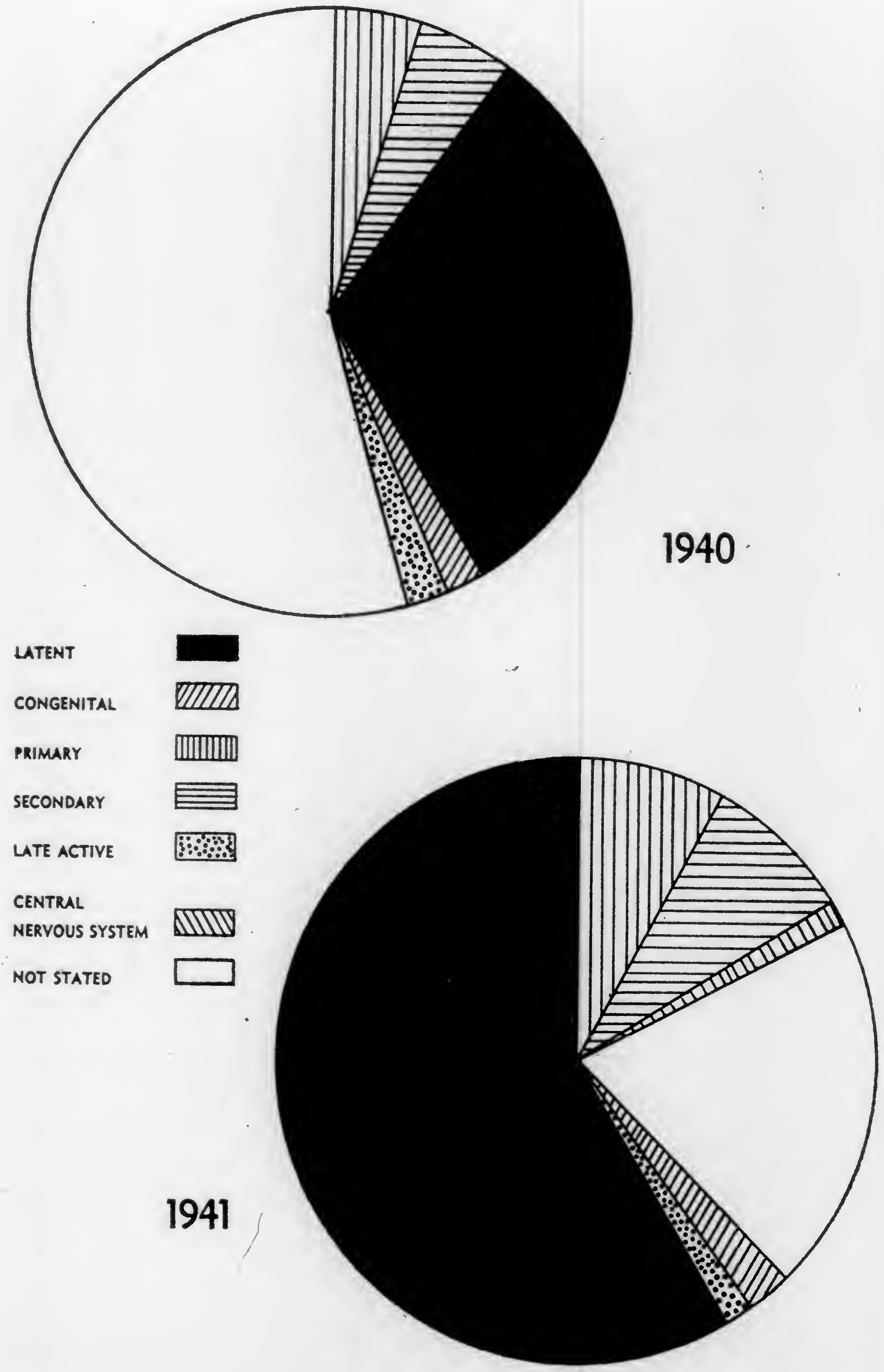
TABLE 4.—DISTRIBUTION OF DRUGS AS TO SOURCES AND KIND FURNISHED BY THE DIVISION THROUGHOUT THE YEAR.

| DRUG | Distributed to Private Physicians | Distributed to Clinics, Hospitals Others | Total Distributed |
|---|---|---|---|
| Neoarsphenamine | 21,230 doses | 13,940 doses | 35,170 doses |
| Sulfarsphenamine | 500 doses | 990 doses | 1,490 doses |
| Mapharsen | 31,480 doses | 134,262 doses | 165,742 doses |
| Tryparsamide | doses | 1,280 doses | 1,280 doses |
| Bismuth in Oil | 53,520 cc | 170,000 cc. | 223,520 cc |
| Sulfathiazole | | 89,000 gm | 89,000 gm |
| Sulfapyridine | | 1,000 gm. | 1,000 gm |
| Distilled Water | 492,800 cc | 430,200 cc | 923,000 cc |

*Morbidity Reports* — There has been a slight increase over the previous year in the total number of new cases of syphilis reported. This increase is due to a greater number of new cases reported by clinics while there has actually been a slight decrease in the reports of private physicians. The larger number of cases reported during the year is not to be interpreted as indicating an increased incidence in the state, but rather as an indication that unrecognized cases of syphilis were discovered and reported.

The reports also reflect the greater care clinics and physicians are giving towards a better diagnosis of syphilis, which is illustrated in Graph 3. The concentration of control activities in those age groups which are more important to bring under control is also seen in Graph 4. An increase in the number of young individuals, with a decrease in the older age groups, was reported in 1941 over 1940. As generally expected, the greater number of cases is found in those age groups which are sexually more active. Sixty-one per cent of the cases reported are in the age group of 20 to 39. It is to be noted also that the greater proportion of cases reported is of the Negro race — 82% to be exact. The marked prevalence of venereal diseases among the Negroes and the difficulties encountered in applying preventive measures in this race constitute the major problem in our venereal disease control program.

**GRAPH 3. TYPE OF NEW SYPHILIS REPORTED WITH PERCENTAGE OF EACH—FOR THE STATE, 1940 and 1941**



**GRAPH 4. NEW SYPHILIS REPORTED IN FLORIDA DURING 1940 AND 1941 SHOWING AGE DISTRIBUTION**

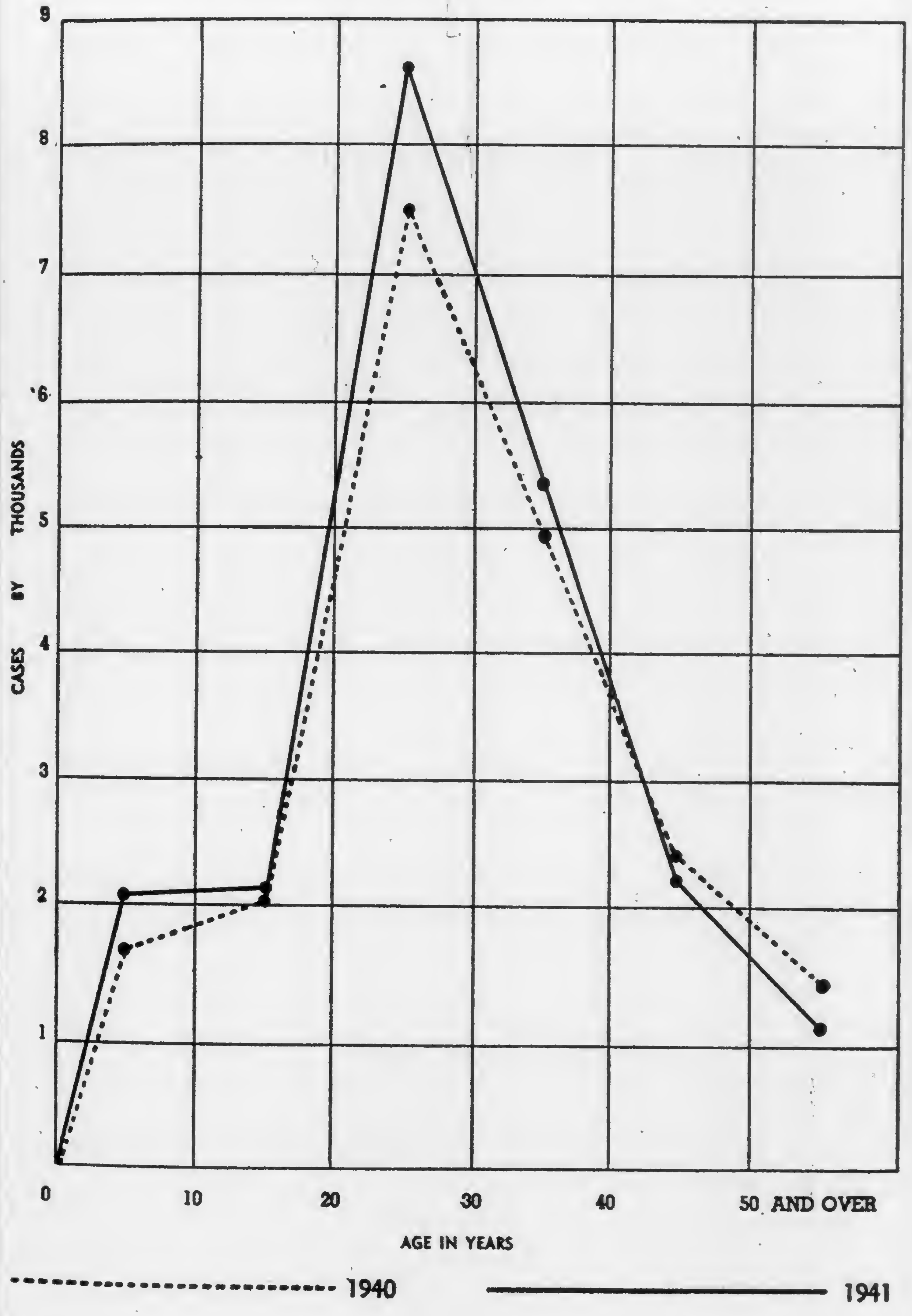


TABLE 5.—REPORT OF NEW SYPHILIS ACCORDING TO STAGE OF INFECTION WITH RATE PER 10,000 POPULATION, PREGNANCY STATUS, RACE AND SEX, SOURCE OF REFERENCE AND AGE GROUPS, BY COUNTIES AND FOR STATE — 1941.

| COUNTY | BY STAGE OF INFECTION | | | | | | | | | | | Pregnancy | BY RACE AND SEX | | | | | | Source of Reference | | BY AGE GROUPS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Primary | Secondary | Early Latent | Latent | Late Latent | Late Active | CNS | Congenital | Not Stated | Total | Rate | | White | | Colored | | Not Stated | Total | Clinic or Inst. | Private M.D. | 0 to 9 | 10 to 19 | 20 to 29 | 30 to 39 | 40 to 49 | 50 and Over | Total |
| | | | | | | | | | | | | | M | F | M | F | | | | | | | | | | | |
| Alachua | 81 | 55 | 61 | 48 | 96 | 1 | 1 | 16 | 19 | 378 | 97.9 | 15 | 15 | 11 | 131 | 217 | 4 | 378 | 9 | 369 | 21 | 49 | 161 | 81 | 50 | 16 | 378 |
| Baker* | | | | 9 | 1 | | | | 108 | 118 | 181.2 | 2 | 1 | 7 | 36 | 51 | 23 | 118 | 117 | 1 | 45 | 9 | 26 | 24 | 10 | 4 | 118 |
| Bay* | 25 | 39 | 50 | 26 | 70 | | 4 | 13 | 14 | 241 | 116.5 | 4 | 54 | 55 | 45 | 86 | 1 | 241 | 111 | 130 | 10 | 32 | 95 | 70 | 24 | 10 | 241 |
| Bradford* | 5 | 4 | 82 | 6 | 123 | 10 | | 9 | 45 | 284 | 325.8 | | 17 | 29 | 103 | 134 | 4 | 284 | 221 | 63 | 8 | 44 | 122 | 68 | 27 | 15 | 284 |
| Brevard | 11 | 20 | 8 | 2 | 13 | 5 | | 7 | 56 | 122 | 75.6 | 2 | 4 | 3 | 43 | 72 | | 122 | 3 | 119 | 4 | 9 | 57 | 31 | 10 | 11 | 122 |
| Broward* | 8 | 12 | 325 | 26 | 296 | 3 | 3 | 15 | 109 | 797 | 200.3 | 22 | 31 | 18 | 376 | 370 | 2 | 797 | 707 | 90 | 84 | 72 | 389 | 166 | 57 | 29 | 797 |
| Calhoun | | | | | 1 | | | | | 1 | 1.2 | | 1 | | | | | 1 | 1 | | | | | 1 | | | 1 |
| Charlotte | | 1 | 1 | 4 | 8 | | | | 15 | 29 | 79.2 | 1 | 2 | 1 | 11 | 15 | | 29 | 14 | 15 | 4 | 1 | 9 | 10 | 4 | 1 | 29 |
| Citrus | 4 | 4 | 3 | | 5 | 1 | | 2 | 1 | 20 | 34.2 | | 4 | 1 | 6 | 9 | | 20 | 1 | 19 | | 2 | 7 | 5 | 3 | 3 | 20 |
| Clay* | 4 | 4 | 42 | | 52 | 1 | | 1 | 38 | 142 | 219.5 | 11 | 4 | 9 | 49 | 75 | 5 | 142 | 108 | 34 | 21 | 15 | 51 | 39 | 11 | 5 | 142 |
| Collier | 2 | 36 | | | 4 | | | | 16 | 58 | 113.7 | | 1 | 1 | 38 | 16 | 2 | 58 | 12 | 46 | 26 | | 6 | 14 | 9 | 3 | 58 |
| Columbia | | 8 | 1 | 10 | 8 | 5 | 5 | 3 | 44 | 84 | 49.8 | | 22 | 9 | 37 | 16 | | 84 | 21 | 63 | 13 | 3 | 22 | 16 | 15 | 15 | 84 |
| Dade* | 471 | 270 | 283 | 1,132 | 251 | 79 | 43 | 82 | 617 | 3,228 | 120.6 | 76 | 397 | 303 | 1,212 | 1,270 | 46 | 3,228 | 1,565 | 1,663 | 282 | 262 | 1,325 | 824 | 315 | 220 | 3,228 |
| DeSoto | 8 | 7 | 2 | 31 | 16 | | | 2 | 2 | 68 | 87.3 | 2 | 15 | 7 | 25 | 21 | | 68 | | 68 | 4 | 5 | 28 | 16 | 8 | 7 | 68 |
| Dixie | | | | 4 | 8 | | | | 6 | 18 | 25.6 | 2 | 3 | 4 | 3 | 8 | | 18 | | 18 | | 4 | 8 | 3 | 1 | 2 | 18 |
| Duval* | 226 | 256 | 807 | 102 | 848 | 46 | 64 | 72 | 552 | 2,973 | 141.5 | 54 | 256 | 237 | 1,213 | 1,219 | 48 | 2,973 | 2,232 | 741 | 257 | 334 | 1,227 | 783 | 278 | 94 | 2,973 |
| Escambia* | 37 | 36 | 319 | 90 | 199 | | 7 | 28 | 49 | 765 | 102.5 | 29 | 85 | 87 | 279 | 303 | 11 | 765 | 652 | 113 | 39 | 92 | 384 | 173 | 52 | 25 | 765 |
| Flagler* | 9 | 4 | 20 | 1 | 43 | | 1 | 1 | 2 | 81 | 269.3 | 2 | 1 | | 40 | 40 | | 81 | 69 | 12 | 1 | 2 | 29 | 23 | 9 | 17 | 81 |
| Franklin* | 27 | 45 | 1 | 10 | 31 | | | 3 | | 117 | 195.3 | 1 | 12 | 13 | 36 | 56 | | 117 | 113 | 4 | 3 | 14 | 42 | 29 | 20 | 9 | 117 |
| Gadsden* | 18 | 81 | 3 | 111 | 29 | 1 | 4 | 10 | 2 | 259 | 82.4 | 13 | 5 | 4 | 93 | 156 | 1 | 259 | 246 | 13 | 4 | 37 | 117 | 63 | 20 | 18 | 259 |
| Gilchrist* | | 17 | 18 | 51 | 5 | | | | 8 | 99 | 232.9 | 5 | 7 | 5 | 32 | 55 | | 99 | 99 | | 8 | 7 | 35 | 29 | 13 | 7 | 99 |
| Glades* | 1 | 56 | 3 | 20 | 76 | | 1 | 10 | 7 | 174 | 633.9 | | 6 | 7 | 74 | 85 | 2 | 174 | 174 | | 17 | 19 | 66 | 46 | 18 | 8 | 174 |
| Gulf* | 59 | 102 | | 18 | 51 | | | 5 | 17 | 252 | 362.5 | | 26 | 12 | 150 | 60 | 4 | 252 | 128 | 124 | 12 | 23 | 100 | 75 | 37 | 5 | 252 |
| Hamilton* | 2 | 14 | 51 | | 149 | | | 5 | 2 | 223 | 228.1 | | 8 | 3 | 109 | 102 | 1 | 223 | 220 | 3 | 3 | 27 | 74 | 56 | 36 | 27 | 223 |
| Hardee | | | | | 1 | | | | 33 | 34 | 33.5 | | 9 | 4 | 11 | 10 | | 34 | | 34 | 13 | 1 | 12 | 5 | 2 | 1 | 34 |
| Hendry | | 1 | 1 | | | | | | 1 | 3 | 5.7 | | | | 2 | 1 | | 3 | 1 | 2 | | | 3 | | | | 3 |
| Hernando | | | | | | | | | 20 | 20 | 35.5 | | | 1 | 14 | 5 | | 20 | 20 | | 5 | | 13 | 2 | | | 20 |
| Highlands* | 9 | 61 | 14 | 2 | 106 | | | 15 | 4 | 211 | 228.2 | 1 | 3 | 10 | 76 | 117 | 5 | 211 | 151 | 60 | 19 | 27 | 82 | 47 | 27 | 9 | 211 |
| Hillsborough* | 91 | 105 | 573 | 35 | 626 | 10 | 11 | 96 | 280 | 1,827 | 101.7 | 25 | 225 | 223 | 700 | 668 | 11 | 1,827 | 1,434 | 393 | 59 | 193 | 739 | 494 | 230 | 112 | 1,827 |
| Holmes | 1 | | | | | 1 | | | 4 | 6 | 3.9 | | 1 | 4 | | 1 | | 6 | 1 | 5 | | 1 | 4 | | | 1 | 6 |
| Indian River | 5 | 1 | 2 | 6 | 7 | 4 | 1 | 1 | 20 | 47 | 52.5 | | 2 | | 20 | 25 | | 47 | 4 | 43 | 5 | 4 | 20 | 12 | 3 | 3 | 47 |
| Jackson* | 1 | 6 | 203 | 1 | 23 | | | 7 | 101 | 342 | 99.3 | 4 | 19 | 40 | 112 | 171 | | 342 | 333 | 9 | 96 | 64 | 80 | 58 | 22 | 22 | 342 |
| Jefferson | 52 | 57 | | | 2 | | | 1 | | 112 | 93.1 | 4 | 5 | 3 | 38 | 66 | | 112 | | 112 | 1 | 14 | 45 | 36 | 7 | 9 | 112 |
| Lafayette | | | | 1 | 2 | | 1 | | | 4 | 9.1 | | 3 | 1 | | | | 4 | | 4 | | | | 2 | | 2 | 4 |
| Lake* | 46 | 15 | 155 | 1 | 113 | | 1 | 14 | 37 | 382 | 140.2 | 3 | 14 | 9 | 172 | 179 | 8 | 382 | 268 | 114 | 53 | 54 | 153 | 80 | 30 | 12 | 382 |
| Lee | 1 | 5 | 3 | 9 | 10 | | 1 | 5 | 28 | 62 | 35.5 | | 6 | 4 | 31 | 21 | | 62 | 2 | 60 | 7 | 5 | 18 | 22 | 9 | 1 | 62 |
| Leon* | 6 | 6 | 59 | 68 | 257 | | | 11 | 31 | 438 | 138.4 | 24 | 3 | 15 | 131 | 275 | 14 | 438 | 427 | 11 | 81 | 58 | 163 | 95 | 31 | 10 | 438 |

TABLE 5.—REPORT OF NEW SYPHILIS ACCORDING TO STAGE OF INFECTION WITH RATE PER 10,000 POPULATION, PREGNANCY STATUS, RACE AND SEX, SOURCE OF REFERENCE AND AGE GROUPS, BY COUNTIES AND FOR STATE — 1941. — (Continued.)

| COUNTY | BY STAGE OF INFECTION | | | | | | | | | | | Pregnancy | BY RACE AND SEX | | | | | | Source of Reference | | BY AGE GROUPS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Primary | Secondary | Early Latent | Latent | Late Latent | Late Active | CNS | Congenital | Not Stated | Total | Rate | | White | | Colored | | Not Stated | Total | Clinic or Inst. | Private M.D. | 0 to 9 | 10 to 19 | 20 to 29 | 30 to 39 | 40 to 49 | 50 and Over | Total |
| | | | | | | | | | | | | | M | F | M | F | | | | | | | | | | | |
| Levy* | 16 | 57 | 7 | 69 | | | | 9 | 521 | 679 | 541.0 | | 4 | 5 | 248 | 319 | 103 | 679 | 668 | 11 | 175 | 46 | 159 | 130 | 100 | 69 | 679 |
| Liberty | | | | | | | 1 | | | 1 | 2.7 | | 1 | | | | | 1 | 1 | | | | | | | 1 | 1 |
| Madison | 4 | 6 | 4 | | 49 | | 2 | 4 | 15 | 84 | 51.9 | 2 | 8 | 9 | 28 | 39 | | 84 | 3 | 81 | 2 | 8 | 35 | 25 | 8 | 6 | 84 |
| Manatee | 19 | 32 | 5 | 16 | 18 | | | 8 | 77 | 175 | 67.1 | 5 | 21 | 19 | 66 | 69 | | 175 | 13 | 162 | 7 | 22 | 63 | 57 | 15 | 11 | 175 |
| Marion | 3 | 23 | 76 | 11 | 27 | 3 | 1 | | 118 | 262 | 83.9 | 6 | 9 | 4 | 138 | 102 | 9 | 262 | 5 | 257 | 24 | 24 | 138 | 55 | 19 | 2 | 262 |
| Martin | 14 | 1 | 2 | 14 | 8 | | 2 | | 6 | 47 | 74.7 | 2 | | 2 | 20 | 25 | | 47 | 22 | 25 | 7 | 7 | 13 | 13 | 5 | 2 | 47 |
| Monroe* | 3 | 2 | 15 | 1 | 12 | | 1 | 1 | 3 | 38 | 27.0 | | 7 | 12 | 10 | 8 | 1 | 38 | 5 | 33 | | 4 | 24 | 4 | 4 | 2 | 38 |
| Nassau* | 4 | 12 | | 25 | 4 | 1 | | | 200 | 246 | 227.2 | 1 | 13 | 9 | 90 | 123 | 11 | 246 | 231 | 15 | 25 | 13 | 105 | 62 | 26 | 15 | 246 |
| Okaloosa* | 2 | | 1 | | | | | | 1 | 4 | 3.1 | | 4 | | | | | 4 | 3 | 1 | 1 | | 3 | | | | 4 |
| Okeechobee | | | 1 | 6 | 5 | | | | 1 | 13 | 43.3 | | 1 | | 8 | 4 | | 13 | | 13 | | | 5 | 7 | | 1 | 13 |
| Orange* | 21 | 8 | 104 | 381 | 108 | 8 | 5 | 1 | 155 | 791 | 112.9 | 12 | 69 | 54 | 335 | 329 | 4 | 791 | 735 | 56 | 37 | 57 | 347 | 222 | 86 | 42 | 791 |
| Osceola* | | | | | 1 | | | 1 | 46 | 48 | 47.4 | | 2 | 5 | 25 | 16 | | 48 | 36 | 12 | 9 | 4 | 14 | 7 | 11 | 3 | 48 |
| Palm Beach | 38 | 39 | 447 | 72 | 405 | 14 | 6 | 13 | 445 | 1,479 | 184.9 | 17 | 53 | 35 | 581 | 793 | 17 | 1,479 | 940 | 539 | 57 | 106 | 627 | 450 | 162 | 77 | 1,479 |
| Pasco | | | 2 | | 2 | 1 | | 2 | 59 | 66 | 47.2 | 1 | 10 | 6 | 29 | 19 | 2 | 66 | 3 | 63 | 1 | 11 | 32 | 13 | 5 | 4 | 66 |
| Pinellas* | 81 | 94 | 266 | 118 | 423 | 24 | 14 | 41 | 26 | 1,087 | 118.3 | 44 | 72 | 54 | 432 | 520 | 9 | 1,087 | 759 | 328 | 91 | 92 | 455 | 285 | 113 | 51 | 1,087 |
| Polk | 26 | 22 | 51 | 193 | 92 | 2 | 3 | 13 | 19 | 421 | 48.6 | 2 | 41 | 45 | 146 | 183 | 6 | 421 | 362 | 59 | 26 | 34 | 152 | 124 | 48 | 37 | 421 |
| Putnam | 1 | 9 | 2 | 2 | 5 | | 2 | 3 | 21 | 45 | 24.1 | 1 | 3 | 8 | 13 | 20 | 1 | 45 | 2 | 43 | 1 | 8 | 15 | 14 | 7 | | 45 |
| St. Johns | 13 | 8 | | 27 | 6 | 1 | 2 | | 2 | 59 | 29.5 | 2 | 11 | 5 | 11 | 32 | | 59 | 5 | 54 | 3 | 3 | 18 | 19 | 9 | 7 | 59 |
| St. Lucie | 11 | 17 | 13 | 8 | 148 | | | 2 | 30 | 229 | 192.9 | 2 | 6 | 5 | 74 | 141 | 3 | 229 | 102 | 127 | 30 | 16 | 84 | 59 | 21 | 19 | 229 |
| Santa Rosa* | 3 | 1 | 49 | 2 | 19 | 1 | 1 | 5 | | 81 | 50.4 | | 11 | 12 | 25 | 32 | 1 | 81 | 78 | 3 | 2 | 13 | 38 | 20 | 7 | 1 | 81 |
| Sarasota | 5 | 6 | 16 | 45 | 101 | 1 | 2 | 3 | 54 | 233 | 144.7 | 3 | 23 | 16 | 102 | 91 | 1 | 233 | 92 | 141 | 64 | 8 | 76 | 51 | 23 | 11 | 233 |
| Seminole* | 33 | 16 | 14 | 7 | 46 | 5 | 2 | 1 | 91 | 215 | 96.4 | 4 | 4 | 7 | 82 | 121 | 1 | 215 | 26 | 189 | 93 | 10 | 36 | 44 | 22 | 10 | 215 |
| Sumter | 8 | | 11 | 1 | 7 | 1 | 2 | 1 | 12 | 43 | 38.9 | | 5 | 3 | 13 | 21 | 1 | 43 | 15 | 28 | 5 | 3 | 14 | 11 | 4 | 6 | 43 |
| Suwannee | 1 | 4 | 1 | 7 | 36 | | 3 | 2 | 1 | 55 | 32.2 | 2 | 14 | 8 | 17 | 16 | | 55 | 1 | 54 | 3 | 5 | 22 | 9 | 9 | 7 | 55 |
| Taylor* | 11 | 10 | 13 | 1 | 39 | 3 | | 4 | 51 | 132 | 114.1 | 2 | 9 | 21 | 40 | 62 | | 132 | 125 | 7 | 22 | 16 | 53 | 30 | 8 | 3 | 132 |
| Union | 2 | 1 | | | 1 | | | | | 4 | 5.6 | | | | 3 | 1 | | 4 | 1 | 3 | | 1 | | 2 | | 1 | 4 |
| Volusia | 8 | 8 | 8 | 31 | 8 | 4 | 2 | 3 | 57 | 129 | 24.0 | 3 | 13 | 19 | 42 | 55 | | 129 | 3 | 126 | 20 | 11 | 41 | 28 | 20 | 9 | 129 |
| Wakulla* | | | | | | | | | 94 | 94 | 172.0 | 1 | 1 | 4 | 38 | 51 | | 94 | 94 | | 93 | 1 | | | | | 94 |
| Walton* | | | 12 | 4 | 21 | | 1 | | 5 | 43 | 30.2 | | 13 | 2 | 12 | 16 | | 43 | 39 | 4 | 10 | 3 | 21 | 4 | 3 | 2 | 43 |
| Washington | 1 | | | | | 1 | | | | 2 | 1.6 | | 2 | | | | | 2 | 1 | 1 | 1 | | | | | 1 | 2 |
| State Inst. | | | 27 | 29 | 43 | | 129 | 1 | 2 | 231 | —— | 1 | 52 | 32 | 95 | 51 | 1 | 231 | 230 | 1 | 15 | 4 | 30 | 67 | 56 | 59 | 231 |
| Out of State | 14 | 9 | 7 | 5 | 8 | 9 | 6 | | 16 | 74 | —— | 1 | 17 | 3 | 40 | 12 | 2 | 74 | 51 | 23 | 6 | 5 | 28 | 8 | 15 | 12 | 74 |
| Camp Blanding | 99 | 34 | 11 | 8 | 10 | | 2 | 1 | 11 | 176 | —— | | 82 | | 84 | | 10 | 176 | 176 | | 14 | 21 | 122 | 16 | 3 | | 176 |
| Naval Air Base | 22 | | | | | | 5 | | 5 | 27 | —— | | 24 | | 2 | | 1 | 27 | 27 | | | 2 | 24 | 1 | | | 27 |
| | 1,673 | 1,747 | 4,255 | 2,907 | 5,182 | 246 | 337 | 553 | 4,432 | 21,332 | 112.4 | 416 | 1,872 | 1,544 | 8,297 | 9,246 | 373 | 21,332 | 14,318 | 7,014 | 2,049 | 2,041 | 8,506 | 5,335 | 2,197 | 1,204 | 21,332 |

*Counties having full time health services.

# MALARIA CONTROL

JOHN E. ELMENDORF, M. D., *Director*

In view of the inter-relationship of the activities of the Escambia County Malaria Department and the new Bureau of Malaria Control in the State Board of Health, this year's report will be rendered as one report, with separate supporting sections, covering each division of activities.

During the beginning of the year of 1941, it became apparent that many of the main objectives which prompted the formation of the demonstration unit in Escambia County had reached a degree of accomplishment, or a stage of stabilization of procedure, which warranted the decision to attempt the formation of a Bureau of Malaria Control within the organization of the State Board of Health.

Practical control operations in the city of Pensacola were estimated as 70% completed.

The county screening program, though still not large in volume, was organized in such manner that it only needed a continuance of education and demonstration of the finished products of mosquito proofing and allocation of county funds for salaries of carpenters, to assure its final successful outcome.

The department was functioning successfully for demonstration purposes and as a training base.

The routine procedure for the collection of all field data had been established and was operating.

Manufacture at the concrete plant of all concrete products needed for drainage as applied to malaria control had been standardized.

The projects at the Naval Air Station and the new projects at Fort Barrancas were progressing satisfactorily.

Controlled areas demonstrated almost a complete absence of all anophelines for all seasons of the year.

A W.P.A. drainage project had been placed in operation in February of 1941, sufficient in funds to last for more than the year 1941.

Plans were in progress for the drainage of the only remaining large area still left undrained, from the originally planned program of drainage.

There remained to be accomplished another aim of the original concept of the formation of the department; namely, the establishment of a state-wide bureau for malaria survey and control.

During the early part of the year, upon receipt of a request to the Rockefeller Foundation from Dr. Pickett, State Health Officer, Dr. Ferrell visited Jacksonville to discuss the possibilities of the formation of such a bureau. As a result of these conferences, it was agreed and approved that a Bureau of Malaria Control should be incorporated in the organization of the State Board of Health, with the United States Public Health Service, the Rockefeller Foundation, and the State Board of Health supporting the bureau financially.

Dr. Elmendorf continued the direction of the Escambia County project until July 1, when he was transferred to Jacksonville to assume the duties of organization and direction of the new bureau.

An engineer, Mr. E. B. Barnawell, previously of the Georgia State Department of Health was secured to serve as Director of the Department under the administrative direction of Dr. Stebbins of the Escambia County Health Department and under the technical supervision of the Bureau of Malaria Control.

One of the particular duties of the new Bureau of Malaria Control is the continued supervision of the Escambia County project.

## BUREAU OF MALARIA CONTROL

A Bureau of Malaria Control was incorporated in the organization of the Florida State Board of Health on July 1, 1941.

The total yearly budget for this bureau from July 1, 1941, to June 30, 1942, is $14,800. The finances are provided as follows:*

| | | |
|---|---|---|
| U. S. Public Health Service | $6,600.00 | |
| Florida State Board of Health | 6,600.00 | |
| The Rockefeller Foundation | 1,600.00 | $14,800.00 |

The personnel of the bureau is to consist of:

A director, ad interim, loaned by the Rockefeller Foundation on a yearly basis (salary and travel defrayed by the Rockefeller Foundation separate from the budget).

From the budget:

An assistant director, to be trained to assume ultimately the position of director; a sanitary engineer; an entomologist; a stenographer-clerk.

### PROPOSED ACTIVITIES OF THE BUREAU

Collection of all pertinent statistical data on malaria incidence and mortality in the state of Florida for orientation regarding the actual status of the disease in the state and for comparison with other states;

---

*For details, see budget page 91.

Collection of all available entomological data from all sources indicating the presence or absence of anopheline mosquitoes in all areas of the state;

Promulgation of all phases of education of the public in fundamental knowledge of malaria and its control;

Execution of routine annual clinical and entomological surveys covering all districts where malaria exists;

Formulation of plans for control in accordance with clinical, entomological and hydrographic findings;

Promotion of actual control activities in localities through local appropriations;

Inauguration and supervision of control works;

Training of a local personnel to continue essential activities;

*During the period of the national emergency*:

Precedence over all other activities to be given to work at military bases;

Surveys, entomological and clinical, to be performed where and when desired at the bases;

Assistance in formulation of plans for control, to be furnished when desired;

Training of military personnel in entomological procedures to be arranged as well as supervision of all larvicidal programs when requested.

## ORGANIZATION OF BUREAU

Office space was secured in the building of the State Board of Health. Very little new equipment and furnishings had to be purchased, as an agreement had been made with Dr. Stebbins, Director of the Escambia County Health Department, whereby a good portion of our previous equipment was transferred to Jacksonville. Sufficient was left in Pensacola for all needs of the department there.

An assistant director, Dr. R. J. Patterson, was secured and assumed his duties on July 1. In addition to the general training in all phases of malariology received at this office, he was sent to Dr. Boyd's laboratory and to Escambia County for field work. He was also instructed in the work of the clinical survey and became very adept in this phase of investigation.

It is unfortunate to report that after four months' training and becoming reasonably proficient, he resigned on October 31 to enter private practice in one of the counties of Florida. At present, there are no prospects of securing a capable physician to fill this position until July 1, 1942, when one man fairly well qualified will possibly be available.

Mr. John A. Mulrennan was transferred from the Escambia County Unit to occupy the position of entomologist of the state Bureau of Malaria Control.

All attempts to secure a sanitary engineer have been unsuccessful and, up until the present time, there are no prospects.

A technician for examination of blood smears was added to the personnel of the Bureau the first of October. Her salary is paid from the Bureau of Laboratories.

## SUPERVISORY BOARD OF CONSULTANTS

It was decided that a Board of Consultants named from prominent malariologists in the country should assist the director of the new bureau. It is planned that the Board will offer their critique relative to work accomplished, the measures used, plans for the future and allocation of funds to the different phases of the Bureau's activities, give general counsel on all allied activities of the Bureau, and, finally, approve measures adopted for control.

Over and above the functions here cited, the Board of Consultants could serve as a Board of Appeal in case of any disagreement in principles governing the activities of the Bureau, or division of opinion regarding methods to be used.

The Board of Consultants was named, after approval by the State Health Officer, and consists of Dr. Mark F. Boyd, Dr. L. L. Williams, Dr. W. V. King, and Mr. H. A. Johnson. Dr. T. Z. Cason, of Jacksonville, was named to represent the medical profession of Florida, but found it impossible to accept this position and, to the present, no local man has been found who is qualified for the position and at the same time whose activities permit his assuming this duty.

A meeting of the Board of Consultants was called for August 23, 1941, to discuss a memorandum which had been prepared for them (see report on page 84). Due to unavoidable circumstances, only one of the Board, Dr. W. V. King, could meet with the personnel of the Malaria Bureau and Drs. Pickett and Patterson on that date. Subsequently, the memorandum was sent to each member and was approved by them with only slight modifications.

At this first meeting, the belief was expressed that only one meeting of the Board should be held each year, preferably during the winter after the survey was completed and when plans for the following season were to be outlined. No definite decision was made regarding this point and accordingly, in view of the small attendance at this meeting, it is deemed

TABLE 1. — DISTRIBUTION OF MALARIA DEATHS BY COUNTIES, STATE OF FLORIDA, SHOWING TOTAL DEATHS 10-YEAR PERIOD, AVERAGE DEATHS PER YEAR, RATE PER 100,000 AVERAGE 10-YEAR PERIOD, (1931-1940), RATE PER 100,000 FOR YEAR 1940.

| County | Population 1940 | Total Deaths 10 years | Average Deaths 10 years | Rate per 100,000 | |
|---|---|---|---|---|---|
| | | | | 10-year Period | 1940 |
| Alachua | 38,724 | 89 | 8.9 | 24.5 | 0.0 |
| Baker | 6,510 | 7 | .7 | 10.3 | 0.0 |
| Bay | 20,885 | 30 | 3.0 | 20.5 | 0.0 |
| Bradford | 8,717 | 14 | 1.4 | 15.5 | 11.5 |
| Broward | 40,637 | 29 | 2.9 | 10.3 | 2.5 |
| Brevard | 16,226 | 4 | .4 | 2.7 | 6.2 |
| Calhoun | 8,218 | 35 | 3.5 | 44.9 | 0.0 |
| Charlotte | 3,663 | 7 | .7 | 17.3 | 0.0 |
| Citrus | 5,860 | 38 | 3.8 | 67.7 | 17.1 |
| Clay | 6,468 | 6 | .6 | 8.6 | 0.0 |
| Collier | 5,118 | 3 | .3 | 7.3 | 0.0 |
| Columbia | 16,939 | 68 | 6.8 | 44.5 | 17.7 |
| Dade | 272,116 | 12 | 1.2 | 0.6 | 0.4 |
| DeSoto | 7,792 | 11 | 1.1 | 11.8 | 0.0 |
| Dixie | 7,080 | 60 | 6.0 | 92.1 | 70.6 |
| Duval | 211,946 | 71 | 7.1 | 3.9 | 2.8 |
| Escambia | 75,584 | 48 | 4.8 | 7.9 | 6.6 |
| Flagler | 3,008 | 5 | .5 | 17.5 | 0.0 |
| Franklin | 5,991 | 34 | 3.4 | 52.8 | 33.4 |
| Gadsden* | 26,952 | 124 | 12.4 | 44.4 | 3.7 |
| State Hospital | 4,502 | 7 | .7 | 17.2 | 0.0 |
| Gilchrist | 4,252 | 25 | 2.5 | 59.3 | 23.5 |
| Glades | 2,749 | 2 | .2 | 7.4 | 0.0 |
| Gulf | 7,147 | 9 | .9 | 17.1 | 28.0 |
| Hamilton | 9,781 | 48 | 4.8 | 49.7 | 40.9 |
| Hardee | 10,158 | 28 | 2.8 | 23.4 | 0.0 |
| Hendry | 5,312 | 8 | .8 | 18.3 | 18.8 |
| Hernando | 5,651 | 15 | 1.5 | 28.1 | 17.7 |
| Highlands | 9,246 | 3 | .3 | 2.9 | 0.0 |
| Hillsborough | 181,237 | 79 | 7.9 | 4.8 | 0.0 |
| Holmes | 15,499 | 55 | 5.5 | 38.8 | 19.4 |
| Indian River | 8,983 | 0 | .0 | .0 | .0 |
| Jackson | 34,428 | 201 | 20.1 | 58.9 | 49.4 |
| Jefferson | 12,032 | 126 | 12.6 | 94.9 | 16.6 |
| Lafayette | 4,413 | 13 | 1.3 | 30.0 | 0.0 |
| Lake | 27,255 | 46 | 4.6 | 16.9 | 3.7 |
| Lee | 17,547 | 23 | 2.3 | 13.9 | 5.7 |
| Leon | 31,904 | 88 | 8.8 | 33.0 | 18.8 |
| Levy | 12,550 | 68 | 6.8 | 52.9 | 8.0 |
| Liberty | 3,752 | 12 | 1.2 | 30.6 | 0.0 |
| Madison | 16,190 | 97 | 9.7 | 59.4 | 24.7 |
| Manatee | 26,255 | 55 | 5.5 | 23.0 | 7.6 |
| Marion | 31,272 | 137 | 13.7 | 44.4 | 16.0 |
| Martin | 6,347 | 7 | .7 | 12.6 | 0.0 |
| Monroe | 14,117 | 0 | .0 | .0 | .0 |
| Nassau | 10,911 | 11 | 1.1 | 11.7 | 0.0 |
| Okaloosa | 12,911 | 20 | 2.0 | 17.1 | 0.0 |
| Orange | 70,681 | 25 | 2.5 | 4.3 | 0.0 |
| Okeechobee | 3,000 | 1 | .1 | 2.9 | 0.0 |
| Osceola | 10,137 | 9 | .9 | 8.8 | 9.9 |

*State Hospital Inmates Included 1931-1932.

TABLE 1. — DISTRIBUTION OF MALARIA DEATHS BY COUNTIES, STATE OF FLORIDA, SHOWING TOTAL DEATHS 10-YEAR PERIOD, AVERAGE DEATHS PER YEAR, RATE PER 100,000 AVERAGE 10-YEAR PERIOD, (1931-1940), RATE PER 100,000 FOR YEAR 1940 (CONTINUED).

| County | Population 1940 | Deaths 10 years Total | Average Deaths 10-years | Rate per 100,000 | |
|---|---|---|---|---|---|
| | | | | 10-year Period | 1940 |
| Palm Beach | 81,348 | 27 | 2.7 | 4.4 | 0.0 |
| Pasco | 14,119 | 24 | 2.4 | 20.9 | 7.1 |
| Pinellas | 93,226 | 45 | 4.5 | 6.4 | 0.0 |
| Polk | 86,903 | 70 | 7.0 | 8.3 | 3.5 |
| Putnam | 18,720 | 36 | 3.6 | 19.3 | 0.0 |
| St. Johns | 20,135 | 13 | 1.3 | 6.9 | 0.0 |
| St. Lucie | 12,015 | 2 | .2 | 2.2 | 0.0 |
| Santa Rosa | 16,117 | 12 | 1.2 | 7.9 | 0.0 |
| Sarasota | 16,223 | 12 | 1.2 | 8.2 | 6.2 |
| Seminole | 22,313 | 32 | 3.2 | 15.0 | 4.5 |
| Sumter | 11,092 | 42 | 4.2 | 39.6 | 9.0 |
| Suwannee | 17,080 | 79 | 7.9 | 47.8 | 23.4 |
| Taylor | 11,591 | 49 | 4.9 | 41.1 | 0.0 |
| Union | 7,094 | 11 | 1.1 | 13.9 | 0.0 |
| Volusia | 53,874 | 38 | 3.8 | 7.7 | 5.6 |
| Wakulla | 5,463 | 38 | 3.6 | 66.5 | 0.0 |
| Walton | 14,269 | 38 | 3.8 | 24.5 | 14.0 |
| Washington | 12,302 | 38 | 3.8 | 30.4 | 16.3 |

advisable to have another meeting in the early spring if this can be arranged.

## PRELIMINARY ACTIVITIES OF THE BUREAU

Pending the time for the inauguration of the clinical survey in late September, October and early November, the personnel of the Bureau, consisting of the Director, Assistant Director and Entomologist, was occupied in the collection of statistical data relative to mortality of malaria, entomological records pertaining to the epidemiology of malaria throughout Florida and execution of an entomological survey in as many as possible of those counties where control works were contemplated.

The mortality data collected covered the following main headings:

Mortality of malaria by counties for two ten-year periods (See Table 1).

Mortality of malaria in all states where malaria exists to a degree of economic import (see Table 2).

Detailed studies were made in Pensacola as a continuance of previous yearly studies. For the third year in succession, cases positive for parasites have been extremely low, both in the splenic positive and splenic negative groups. (See Table 3).

### TABLE 2. — Malaria Death Rates*, (Ten-Year Average 1930-1939), Florida and Certain Other States

Data on which this table was based was secured for the National Malaria Society by the Sub-Committee on Statistics and analyzed by the Bureau of Malaria Control of the Florida State Board of Health.

| State | Rate | State | Rate |
|---|---|---|---|
| United States Average | 2.6 | North Carolina | 2.1 |
| Arkansas | 26.8 | Kentucky | 1.9 |
| Mississippi | 20.2 | Virginia | 0.4 |
| Florida | 17.3 | California | 0.1 |
| South Carolina | 16.2 | Iowa | 0.1 |
| Georgia | 11.2 | Maryland | 0.1 |
| Louisiana | 10.6 | Michigan | 0.1 |
| Alabama | 9.4 | Nebraska | 0.1 |
| Texas† | 6.6 | New York | 0.1 |
| Tennessee | 6.0 | Pennsylvania | 0.1 |

*Number per 100,000 estimated population.
†Based on a 7-year average.

Sample entomological surveys were made in the following counties: Calhoun, Citrus, Gadsden, Jackson, Leon, Madison, Taylor. These entomological surveys conducted during 1941 were necessarily limited to sample surveys. The area to be covered was too extensive to permit of continued study to determine densities at different periods. (See Tables 4-9).

Special surveys were also made at the Naval Air Station, Jacksonville, and Camp Blanding, Clay County; C. C. Camp No. 4448 in Taylor County. (See reports, pages 70 to 75.)

After offering the services of the Bureau of Malaria to the Commanding Officers of the Naval Air Station, Jacksonville, and Camp Blanding, the Bureau was requested by the officers in charge of each organization to conduct the survey at these bases. The survey was made through investigations for both larvae and adults. Adults were captured by light traps, as no animals were available for animal bait traps.

It is an interesting commentary on the efficiency of the larviacidal work in each of these bases that, as judged from larval and adult investigations, larvicidal programs were producing most efficient results. (For detail, see report, pages 70 to 75.)

The surveys at both of these localities were conducted over a period of weeks in order to make the sample of the mosquito fauna as comprehensive as possible.

### TABLE 3. — Splenic Survey With Associated Blood Examinations, City of Pensacola, Fall of 1941.

| City of Pensacola | Results of Splenic Examination | | | | | | | | Results of Blood Examination on Positive Spleen | | | | | Results of Blood Exam. on 5th Neg. Spleen | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. Examined | No. Positive | No. P. D. I. | No. 1 | No. 2 | No. 3 | No. Negative | % Positive Spleens | No. Examined | No. Positive | No. Negative | Refused Examination | % Positive | No. Examined | No. Positive | No. Negative | % Positive |
| Hallmark | 461 | 128 | 87 | 34 | 6 | 1 | 333 | 27.8 | 124 | 0 | 124 | 4 | | 67 | 0 | 67 | |
| E. J. Wilson | 335 | 93 | 64 | 24 | 4 | 1 | 242 | 27.8 | 93 | 0 | 93 | | | 47 | 0 | 47 | |
| Brownsville | 195 | 46 | 33 | 11 | 2 | | 149 | 23.6 | 43 | 0 | 43 | 3 | | 30 | 0 | 30 | |
| McMillan | 188 | 42 | 25 | 16 | 1 | | 146 | 22.3 | 42 | 0 | 42 | | | 28 | 0 | 28 | |
| St. Michael's | 186 | 36 | 24 | 9 | 2 | 1 | 150 | 19.3 | 32 | 0 | 32 | 4 | | 32 | 0 | 32 | |
| Yniestra | 566 | 108 | 77 | 30 | 1 | | 458 | 19.1 | 104 | 0 | 104 | 4 | | 88 | 0 | 88 | |
| McReynolds | 253 | 46 | 22 | 21 | 1 | 2 | 207 | 18.2 | 39 | 0 | 39 | 7 | | 41 | 0 | 41 | |
| N. B. Cook | 314 | 49 | 31 | 17 | 1 | | 265 | 15.6 | 47 | 0 | 47 | 2 | | 41 | 1* | 40 | 2.4 |
| P. K. Yonge | 398 | 57 | 33 | 22 | 2 | | 341 | 14.3 | 57 | 0 | 57 | | | 66 | 0 | 66 | |
| Totals | 2896 | 605 | 396 | 184 | 20 | 5 | 2291 | 20.9 | 581 | 0 | 581 | 24 | | 440 | 1 | 439 | |

*P. *vivax*.

TABLE 4.—ANOPHELINE ADULT AND LARVAE DENSITY, CITY OF TALLAHASSEE AND BLOUNTSTOWN, 1941.

| LOCATION | Date | Total Time Spent in Captures (Minutes) | Number Stations Inspect-ed | Number Stations Positive for Crucians | Number Stations Positive for "Quads" | Total No. Female Crucians from all Stations | Total No. Female "Quads" From All Stations | Average No. Crucians per Man-Hr. From All Stations | Average No. "Quads" per Man-Hr. From All Stations |
|---|---|---|---|---|---|---|---|---|---|
| Tallhassee ..................<br>(Leon County) | Sept. 11-12 | 193′ | 24 | 4 | 13 | 24 | 1205 | 7.46 | 374.61 |
| Blountstown ..............<br>(Calhoun County) | Sept. 25 | 43′ | 5 | 1 | 3 | 5 | 11 | 6.98 | 15.35 |

| LOCATION | Date | Total Number Breeding Areas Inspected | Total Number Strokes in All Areas | Av. No. Larvae per Square Meter in All Areas | Total Number Larvae From Areas | | | | Total Species Identified 3rd and 4th Instar | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Instars | | | | | |
| | | | | | 1st | 2nd | 3rd | 4th | Crucians | "Quads" |
| Tallahassee ................<br>(Leon County) | Sept. 13 | 3 | 48 | 136.6 | 144 | 355 | 304 | 17 | 4 | 13 |
| Blountstown ..............<br>(Calhoun County) | Sept. 23 | 1 | 30 | 3.7 | 5 | 4 | 3 | 2 | 5 | 0 |

TABLE 5.— ANOPHELINE ADULT AND LARVAE DENSITY, CITRUS COUNTY, 1941.

| LOCATION | Date | Total Time Spent in Captures (Minutes) | Number Stations Inspect-ed | Number Stations Positive for Crucians | Number Stations Positive for "Quads" | Total No. Female Crucians from all Stations | Total No. Female "Quads" From All Stations | Average No. Crucians per Man-Hr. From All Stations | Average No. "Quads" per Man-Hr. From All Stations |
|---|---|---|---|---|---|---|---|---|---|
| Hernando .................. | Aug. 4 | 49′ | 5 | 1 | 5 | 2 | 73 | 2.4 | 89.4 |
| Floral City ................ | Aug. 5 | 31′ | 4 | 0 | 4 | 0 | 8 | 0 | 15.5 |
| Inverness .................... | Aug. 4 | 62′ | 8 | 2 | 8 | 7 | 63 | 6.8 | 60.9 |
| Crystal River ............ | Aug. 5 | 27′ | 4 | 0 | 4 | 0 | 25 | 0 | 55.5 |
| Old Homosassa ........ | Aug. 5 | 32′ | 3 | 0 | 3 | 0 | 383 | 0 | 718.1 |
| Homosassa Springs .. | Aug. 5 | 12′ | 2 | 0 | 2 | 0 | 18 | 0 | 90.0 |
| Totals .................................. | | 213′ | 26 | 3 | 26 | 9 | 570 | 2.5 | 160.6 |

| LOCATION | Date | Total Number Breeding Areas Inspected | Total Number Strokes in All Areas | Av. No. Larvae per Square Meter in All Areas | Total Number Larvae From Areas | | | | 3rd and 4th Instar Total Species Identified | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Instars | | | | | |
| | | | | | 1st | 2nd | 3rd | 4th | Crucians | "Quads" |
| Hernando .................. | Aug. 4 | 1 | 24 | 134.3 | 116 | 118 | 97 | 72 | 3 | 69 |
| Floral City ................ | Aug. 4 | 1 | 16 | 94.0 | 70 | 64 | 30 | 24 | 2 | 22 |
| Inverness .................... | Aug. 4 | 1 | 40 | 92.4 | 96 | 106 | 140 | 120 | 8 | 112 |
| Crystal River ........... | Aug. 5 | 1 | 16 | 19.5 | 7 | 9 | 14 | 9 | 0 | 23 |
| Old Homosassa ........ | Aug. 5 | 1 | 16 | 31.5 | 16 | 21 | 19 | 7 | 0 | 26 |
| Homosassa Springs .. | Aug. 5 | 1 | 16 | 7.0 | 3 | 5 | 3 | 3 | 0 | 6 |
| Totals .................................. | | 6 | 128 | | 288 | 323 | 303 | 235 | 13 | 258 |
| Average for Area | | | 21.3 | 71.8 | 48.0 | 53.8 | 50.5 | 39.2 | 2.2 | 43.0 |

TABLE 6.—ANOPHELINE ADULT AND LARVAE DENSITY, GADSDEN COUNTY, 1941.

| LOCATION | Date | Total Time Spent in Captures (Minutes) | Number Stations Inspect-ed | Number Stations Positive for Crucians | Number Stations Positive for "Quads" | Total No. Female Crucians from all Stations | Total No. Female "Quads" From All Stations | Average No. Crucians perMan-Hr. From All Stations | Average No. "Quads" per Man-Hr. From All Stations |
|---|---|---|---|---|---|---|---|---|---|
| Quincy .................... | Sept. 26 | 148' | 14 | 1 | 4 | 1 | 7 | 0.4 | 2.84 |
| Midway .................... | Sept. 27 | 18' | 3 | 2 | 1 | 3 | 2 | 10.0 | 6.66 |
| Greensboro .............. | Sept. 26 | 39' | 5 | 2 | 0 | 17 | 0 | 26.15 | 0.0 |
| Chattahoochee .......... | Sept. 25 | 34 | 4 | 0 | 2 | 0 | 3 | 0.0 | 5.29 |
| Totals .................................... | | 239 | 26 | 5 | 7 | 21 | 12 | 5.27 | 3.01 |

| LOCATION | Date | Total Number Breeding Areas Inspected | Total Number Strokes in All Areas | Av. No. Larvae per Square Meter in All Areas | Total Number Larvae From Areas | | | | Total Species Identified 3rd and 4th Instar | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Instars | | | | | |
| | | | | | 1st | 2nd | 3rd | 4th | Crucians | "Quads" |
| Greensboro .............. | Sept. 26 | 1 | 16 | 94.5 | 72 | 67 | 32 | 18 | 18 | 0 |
| Total .................................... | | 1 | 16 | | 72 | 67 | 32 | 18 | 18 | 0 |

NOTE: Very dry at time of inspection.

TABLE 7.—ANOPHELINE ADULT AND LARVAE DENSITY, JACKSON COUNTY, 1941.

| LOCATION | Date | Total Time Spent in Captures (Minutes) | Number Stations Inspect-ed | Number Stations Positive for Crucians | Number Stations Positive for "Quads" | Total No. Female Crucians from all Stations | Total No. Female "Quads" From All Stations | Average No. Crucians perMan-Hr. From All Stations | Average No. "Quads" per Man-Hr. From All Stations |
|---|---|---|---|---|---|---|---|---|---|
| Marianna .................. | Sept. 23 | 55' | 7 | 1 | 2 | 1 | 3 | 1.09 | 3.27 |
| Graceville ................ | Sept. 24 | 35' | 4 | 2 | 1 | 2 | 9 | 3.43 | 15.43 |
| Cottondale ................ | Sept. 24 | 27' | 3 | 3 | 1 | 32 | 2 | 71.11 | 4.44 |
| Sneads .................... | Sept. 25 | 29' | 4 | 2 | 0 | 2 | 0 | 4.14 | 0.00 |
| Totals .................................... | | 146' | 18 | 8 | 4 | 37 | 14 | 15.2 | 5.75 |

| LOCATION | Date | Total Number Breeding Areas Inspected | Total Number Strokes in All Areas | Av. No. Larvae per Square Meter in All Areas | Total Number Larvae From Areas | | | | Total Species Identified 3rd and 4th Instar | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Instars | | | | | |
| | | | | | 1st | 2nd | 3rd | 4th | Crucians | "Quads" |
| Cottondale .............. | Sept. 24 | 1 | 8 | 23 | 11 | 4 | 6 | 2 | 8 | 0 |
| Marianna .............. | Sept. 23 | 1 | 8 | 50 | 8 | 12 | 20 | 10 | 0 | 0 |
| Totals .................................... | | 2 | 16 | | 19 | 16 | 26 | 12 | 8 | 0 |
| Average for Area .............. | | | 8 | 36.5 | 9.5 | 8 | 13 | 6 | 4 | |

TABLE 8.—ANOPHELINE ADULT AND LARVAE DENSITY, MADISON COUNTY, 1941.

| LOCATION | Date | Total Time Spent in Captures (Minutes) | Number Stations Inspect-ed | Number Stations Positive for Crucians | Number Stations Positive for "Quads" | Total No. Female Crucians from all Stations | Total No. Female "Quads" From All Stations | Average No. Crucians per Man-Hr. From All Stations | Average No. "Quads" per Man-Hr. From All Stations |
|---|---|---|---|---|---|---|---|---|---|
| Madison | Aug. 11 | 92′ | 9 | 3 | 9 | 14 | 209 | 9.1 | 136.30 |
| Cherry Lake | Aug. 12 | 48′ | 5 | 1 | 4 | 2 | 25 | 2.5 | 31.25 |
| Sirmons | Aug. 12 | 44′ | 3 | 3 | 3 | 36 | 17 | 49.1 | 23.18 |
| Greenville | Aug. 12 | 50′ | 6 | 3 | 4 | 33 | 13 | 39.6 | 15.60 |
| Pinetta | Aug. 12 | 25′ | 3 | 0 | 2 | 0 | 5 | 0.0 | 12.00 |
| Lovett | Aug. 13 | 30′ | 4 | 1 | 2 | 2 | 4 | 4.0 | 8.00 |
| Lee | Aug. 13 | 10′ | 1 | 1 | 1 | 7 | 5 | 42.0 | 30.00 |
| Totals | | 299′ | 31 | 12 | 25 | 94 | 278 | 18.9 | 55.8 |

| LOCATION | Date | Total Number Breeding Areas Inspected | Total Number Strokes in All Areas | Av. No. Larvae per Square Meter in All Areas | Total Number Larvae From Areas | | | | Total Species Identified 3rd and 4th Instar | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Instars | | | | | |
| | | | | | 1st | 2nd | 3rd | 4th | Crucians | "Quads" |
| Madison | Aug. 11 | 4 | 108 | 30.9 | 164 | 181 | 50 | 23 | 6 | 67 |
| Cherry Lake | Aug. 12 | 2 | 56 | 15.1 | 31 | 28 | 22 | 25 | 8 | 39 |
| Sirmans | Aug. 12 | 1 | 16 | 19.0 | 7 | 9 | 12 | 10 | 18 | 4 |
| Greenville | Aug. 12 | 2 | 32 | 122.0 | 152 | 143 | 105 | 88 | 74 | 21 |
| Pinetta | Aug. 12 | 2 | 32 | 22.8 | 26 | 34 | 16 | 15 | 12 | 19 |
| Moseley Hall | Aug. 13 | 1 | 16 | 20.5 | 9 | 12 | 13 | 7 | 12 | 8 |
| Totals | | 12 | 260 | | 389 | 407 | 218 | 168 | 130 | 158 |
| Average for Area | | | 21.7 | 36.4 | 32.4 | 33.9 | 18.2 | 14.0 | 10.8 | 13.2 |

TABLE 9.—ANOPHELINE ADULT AND LARVAE DENSITY, TAYLOR COUNTY, 1941.

| LOCATION | Date | Total Time Spent in Captures (Minutes) | Number Stations Inspect-ed | Number Stations Positive for Crucians | Number Stations Positive for "Quads" | Total No. Female Crucians from all Stations | Total No. Female "Quads" From All Stations | Average No. Crucians per Man-Hr. From All Stations | Average No. "Quads" per Man-Hr. From All Stations |
|---|---|---|---|---|---|---|---|---|---|
| Mandalay | Aug. 15 | 32′ | 1 | 1 | 1 | 5 | 218 | 9.37 | 408.75 |
| Perry | Aug. 15 | 16′ | 2 | 2 | 2 | 6 | 27 | 22.50 | 101.25 |
| Salem | Aug. 14 | 7′ | 1 | 0 | 1 | 0 | 25 | 0.0 | 214.29 |
| Carbur | Aug. 14 | 10′ | 1 | 0 | 1 | 0 | 24 | 0.0 | 144.00 |
| Dead Man's Bay | Aug. 14 | 17′ | 2 | 1 | 2 | 2 | 10 | 7.06 | 35.30 |
| Total | | 82′ | 7 | 4 | 7 | 13 | 304 | 9.51 | 222.44 |

| LOCATION | Date | Total Number Breeding Areas Inspected | Total Number Strokes in All Areas | Av. No. Larvae per Square Meter in All Areas | Total Number Larvae From Areas | | | | Total Species Identified 3rd and 4th Instar | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Instars | | | | | |
| | | | | | 1st | 2nd | 3rd | 4th | Crucians | "Quads" |
| Perry | Aug. 15 | 4 | 32 | 71.0 | 96 | 90 | 62 | 36 | 11 | 36 |
| Salem C.C.C. | Aug. 14 | 1 | 40 | 66.8 | 108 | 97 | 76 | 53 | 8 | 45 |
| Dead Man's Bay | Aug. 14 | 1 | 16 | 16.5 | 12 | 9 | 7 | 5 | 4 | 8 |
| Total | | 6 | 88 | | 216 | 196 | 145 | 94 | 23 | 89 |
| Average for Area | | | 14.7 | 59.0 | 36.0 | 32.7 | 24.2 | 15.7 | 3.8 | 14.8 |

The surveys at the military bases offered an excellent opportunity to instruct the personnel encharged with the entomological surveys at these bases as well as to inform the foreman of the gangs conducting larvicidal operations regarding some of the fundamentals of the manner of conducting mosquito investigations and the most effective manner of the application of larvicide.

During the course of the survey, the advantage of drains permanently lined with concrete linings was stressed as well as the necessity of making provision in the bottom of the ditches for a small channel to concentrate and remove quickly all residual water as contrasted with storm flow.

The entomological investigations for the whole state, as conducted during the summer months, has demonstrated that, if detailed studies are desired, the bureau will need a larger staff of entomologists during the summer months to make conclusive investigations for determination of densities of anophelines to serve as a yardstick for measuring results of control work and for other scientific purposes. This cannot be accomplished with the present staff of the Bureau and at the same time permit the performance of routine investigations throughout the whole state. During the summer months it may be possible to secure college men to work in this branch at moderate salaries.

## SUPERVISION OF WORK IN ESCAMBIA COUNTY

During the summer and early fall, repeated visits were made to Escambia County to assist Mr. Barnawell in his orientation in his work and his relations to the officials and to inspect the progress of activities, both of the drainage program as well as the mosquito proofing program in the county.

## SPECIAL TRAINING OF PERSONNEL IN ENTOMOLOGICAL PROCEDURES AND IDENTIFICATION OF LARVAE AND ADULTS

During the summer and fall, the facilities of this office and its personnel was placed at the disposal of the State Health Officer for the training of the engineers who were accredited by the United States Public Health Service, through Dr. L. L. Williams, to the Engineering Bureau of the State Board of Health. These engineers as assigned were trained in the office in the procedures used in the identification of the mosquitoes common to Florida, as well as given field instruction.

## THE CLINICAL SURVEY

The clinical survey, associated with its natural complement, entomological investigations, was conducted this summer and fall to the extent that

the available personnel and time permitted. Once again the month of October, with the last week in September and the first week in November, appeared from all evidence to be the period of gratest incidence of the disease in Florida and was accordingly selected as the period for clinical investigation.

The clinical investigations consisted of the examination of school children between the ages of five to twelve, inclusive, by means of splenic examination with a blood smear taken on each case with positive spleen and on each fifth case found negative to this enlargement.

During the early stages of the survey, Dr. Elmendorf worked together with Dr. Patterson, the assistant director of the bureau, demonstrating splenic examinations and the details of conducting the splenic and blood surveys. As soon as Dr. Patterson was qualified, the examiners divided into two groups in order to cover the field more quickly. With the resignation of Dr. Patterson on October 31, the remainder of the survey was performed by Dr. Elmendorf.

In continuation of the records secured in Pensacola over the last four years, a comprehensive survey of 2,896 children was made in the schools of Pensacola in order that records on this investigation might be complete.

Nine counties throughout the state of Florida were examined and the following table demonstrates the general results of this survey. (For detail, see Table 10.)

Splenic Examinations.

| County | Number Examined | Number Positive | Number Negative | Per cent Positive |
|---|---|---|---|---|
| Citrus | 385 | 146 | 239 | 37.9 |
| Leon | 656 | 228 | 428 | 34.7 |
| Gadsden | 708 | 231 | 477 | 32.6 |
| Taylor | 587 | 186 | 401 | 31.6 |
| Madison | 571 | 153 | 418 | 26.8 |
| Jackson | 804 | 207 | 597 | 25.7 |
| Jefferson | 374 | 95 | 279 | 25.4 |
| Escambia | 2896 | 605 | 2291 | 20.9 |
| Bradford | 623 | 99 | 524 | 15.8 |
| Totals | 7604 | 1950 | 5654 | 25.6 |

Bradford County was included in the survey because of its proximity to Camp Blanding and, since mortality rates have always been low in this county, it afforded an opportunity to check the value of splenic findings here against the other counties with much higher rates. It is interesting in this association that the results of splenic findings in Bradford are the lowest for any county examined.

The results of the surveys in all the counties show a rather high incidence of splenic enlargement and it would appear that this situation may result in the not distant future in a considerable increase in clinical manifestations of malaria in Florida.

It is interesting that once again blood positives on splenic positives is extremely low as well as blood positives on children negative to splenic examination. From 1,950 cases positive for splenic enlargement, 1894 blood smears were examined and only 14 were found positive. From 5,654 children negative to splenic enlargement, 1,082 blood examinations were made and 3 were positive.

The contention is raised by some that the failure to find parasites is an indication that the splenic enlargement is not caused by malaria, but in view of the findings in Pensacola where blood positives dropped from 22 percent in 1937 to 4.6 percent in 1938 to 0.0 percent is 1939, the writer believes that these spleens are caused by malaria but parasites are not demonstrable at certain periods, seasons, or years.

The blood findings in the State Board of Health Laboratories at Pensacola, Tallahassee, Tampa, Jacksonville, and Miami are shown in Tables 11 and 12. The findings in these tables represent the results of blood examinations for malaria parasites from cases who were sick and had examinations made to determine the presence or absence of malaria parasites. They are, in general, referred to the laboratories by local physicians, but in some instances come to the laboratory of their own volition.

The district which is most nearly comparable to Pensacola is Tallahassee. It is interesting that the Tallahassee area was the only one to show any appreciable increase in percentage of blood positives for 1941, as contrasted with 1940, and that Pensacola, over this period, showed a decrease in incidence as compared with 1940 and dropped below the incidence for Tallahassee.

The test of the effectiveness of malaria control drainage activities in Pensacola will become apparent when the next epidemic period of malaria occurs in Florida. As judged by entomological findings in controlled areas, it would be expected that Pensacola would show considerably less incidence than other comparable localities.

The increase in percentages of blood positives in Tallahassee this year and a lowered incidence in Pensacola is, of course, only suggestive.

An experiment is planned to demonstrate whether continued parasitic infection, undemonstrated by blood smears, is the cause of persistent splenomegaly.

Cases of splenomegaly will be selected where three or more children with enlarged spleens reside is the same household. These children will be divided into two groups by houses. Splenic and blood examinations

TABLE 10. — SPLENIC FINDINGS WITH ASSOCIATED BLOOD EXAMINATIONS, BY COUNTIES IN FLORIDA, FALL OF 1941

| County and Locality | Results of Splenic Examination | | | | | | | | Results of Blood Examination on Positive Spleens | | | | | Results of Blood Exam. on 5th Negative Spleen | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. Examined | No. Positive | No. P. D. I. | No. 1 | No. 2 | No. 3 | No. Negative | % Positive Spleens | No. Examined | No. Positive | No. Negative | Refused Examination | % Positive | No. Examined | No. Positive | No. Negative | % Positive |
| Citrus | | | | | | | | | | | | | | | | | |
| Hermando | 21 | 10 | 4 | 5 | 1 | | 11 | 47.6 | 10 | 0 | 10 | | | 1 | 0 | 1 | |
| Homosassa | 71 | 33 | 14 | 16 | 2 | 1 | 38 | 46.5 | 32 | 0 | 32 | 1 | | 6 | 0 | 6 | |
| Floral City | 40 | 16 | 7 | 7 | 2 | | 24 | 40.0 | 15 | 0 | 15 | 1 | | 4 | 0 | 4 | |
| Crystal River | 71 | 27 | 15 | 11 | 1 | | 44 | 38.0 | 27 | 0 | 27 | | | 8 | 0 | 8 | |
| Lecanto | 53 | 10 | 6 | 3 | 1 | | 43 | 18.9 | 10 | 0 | 10 | | | 8 | 0 | 8 | |
| Inverness | 129 | 50 | 21 | 24 | 5 | | 79 | 38.7 | 48 | 0 | 48 | 2 | | 16 | 0 | 16 | |
| Totals | 385 | 146 | 67 | 66 | 12 | 1 | 239 | 37.9 | 142 | 0 | 142 | 4 | | 43 | 0 | 43 | |
| Bradford | | | | | | | | | | | | | | | | | |
| Lawtey | 162 | 34 | 18 | 12 | 4 | | 128 | 20.9 | 34 | 0 | 34 | | | 23 | 0 | 23 | |
| Hampton | 78 | 11 | 4 | 6 | 1 | | 67 | 14.1 | 11 | 0 | 11 | | | 13 | *1 | 12 | 7.7 |
| Starke | 383 | 54 | 31 | 16 | 7 | | 329 | 14.1 | 54 | 0 | 54 | | | 64 | 0 | 64 | |
| Totals | 623 | 99 | 53 | 34 | 12 | | 524 | 15.9 | 99 | 0 | 99 | | | 100 | 1 | 99 | 1.0 |

* *p. vivax.*

TABLE 10. — SPLENIC FINDINGS WITH ASSOCIATED BLOOD EXAMINATIONS, BY COUNTIES IN FLORIDA, FALL OF 1941.—(Continued.)

|  | Results of Splenic Examination |  |  |  |  |  |  |  | Results of Blood Examination on Positive Spleens |  |  |  |  | Results of Blood Exam. on 5th Negative Spleen |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| County and Locality | No. Examined | No. Positive | No. P. D. I. | No. 1 | No. 2 | No. 3 | No. Negative | % Positive Spleens | No. Examined | No. Positive | No. Negative | Refused Examination | % Positive | No. Examined | No. Positive | No. Negative | % Positive |
| Gadsden |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Federal Roads | 28 | 13 | 10 | 3 |  |  | 15 | 46.4 | 13 | *1 | 12 |  | 7.7 | 3 | 0 | 3 |  |
| Midway | 16 | 6 | 4 | 1 | 1 |  | 10 | 37.5 | 6 | 0 | 6 |  |  | 2 | 0 | 2 |  |
| Havana | 156 | 58 | 29 | 24 | 5 |  | 98 | 37.2 | 58 | †1 | 57 |  |  | 18 | 0 | 18 |  |
| Quincy | 245 | 80 | 60 | 16 | 4 |  | 165 | 32.7 | 77 | ‡3 | 74 | 3 | 3.9 | 32 | 1 | 31 | 3.1 |
| Chattahoochee | 129 | 38 | 22 | 14 | 1 | 1 | 91 | 29.4 | 37 | 0 | 37 | 1 |  | 17 | 0 | 17 |  |
| Greensboro | 134 | 36 | 23 | 12 | 1 |  | 98 | 26.8 | 29 | 0 | 29 | 7 |  | 24 | 0 | 24 |  |
| Totals | 708 | 231 | 148 | 70 | 12 | 1 | 477 | 32.6 | 220 | 5 | 215 | 11 | 2.27 | 96 | 1 | 95 | 1.0 |

*No. 1 Spleen, *P. malariae.*
†P.D.I., Spleen, *P. vivax.*
‡3 P.D.I. Spleens, *P. vivax,* 2 *P. falciparum.*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Jackson |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Marianna | 190 | 52 | 26 | 24 | 2 |  | 138 | 27.4 | 52 | 0 | 52 |  |  | 26 | 0 | 26 |  |
| Alford | 128 | 33 | 14 | 18 | 1 |  | 95 | 25.8 | 32 | 2 | 30 | 1 | 6.3 | 18 | 0 | 18 |  |
| Graceville | 129 | 33 | 16 | 16 | 1 |  | 96 | 25.6 | 33 | 0 | 33 |  |  | 19 | 0 | 19 |  |
| Sneads | 196 | 50 | 20 | 29 |  | 1 | 146 | 25.5 | 49 | 0 | 49 | 1 |  | 26 | 0 | 26 |  |
| Cottondale | 161 | 39 | 10 | 23 | 5 | 1 | 122 | 24.2 | 38 | 5 | 33 | 1 | 13.2 | 23 | 0 | 23 |  |
| Totals | 804 | 207 | 86 | 110 | 9 | 2 | 597 | 25.7 | 204 | 7 | 197 | 3 | 3.4 | 112 | 0 | 112 |  |

Cottondale: 2 No. 1 Spleens, P. *vivax;* No. 2 Spleen, P. *vivax;* 2 No. 2 Spleens, P. *falciparum.*
Alford: No. 1 Spleen, P. *vivax;* No. 1 Spleen, P. *falciparum.*

---

TABLE 10. — SPLENIC FINDINGS WITH ASSOCIATED BLOOD EXAMINATIONS, BY COUNTIES IN FLORIDA, FALL OF 1941.—(Continued.)

|  | Results of Splenic Examination |  |  |  |  |  |  |  |  | Results of Blood Examination on Positive Spleens |  |  |  |  | Results of Blood Exam. on 5th Negative Spleen |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| County and Locality | No. Examined | No. Positive | No. P. D. I. | No. 1 | No. 2 | No. 3 | No. 4 | No. Negative | % Positive Spleens | No. Examined | No. Positive | No. Negative | Refused Examination | % Positive | No. Examined | No. Positive | No. Negative | % Positive |
| Madison |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Pinetta | 125 | 50 | 21 | 24 | 5 |  |  | 75 | 40.0 | 49 | 0 | 49 | 1 |  | 13 | 0 | 13 |  |
| Greenville | 120 | 43 | 18 | 19 | 5 |  | 1 | 77 | 35.8 | 43 | 0 | 43 |  |  | 14 | 0 | 14 |  |
| Madison | 152 | 43 | 23 | 18 | 2 |  |  | 109 | 28.3 | 43 | 0 | 43 |  |  | 40 | 0 | 40 |  |
| Enterprise | 70 | 7 | 4 | 2 |  | 1 |  | 63 | 10.0 | 7 | 0 | 7 |  |  | 9 | 0 | 9 |  |
| Lee | 104 | 10 |  | 9 |  | 1 |  | 94 | 9.6 | 9 | 0 | 9 | 1 |  | 18 | 0 | 18 |  |
| Totals | 571 | 153 | 66 | 72 | 12 | 2 | 1 | 418 | 26.8 | 151 | 0 | 151 | 2 |  | 94 | 0 | 94 |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Jefferson |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Monticello | 183 | 37 | 20 | 14 | 3 |  |  | 146 | 20.2 | 35 | 0 | 35 | 2 |  | 30 | 0 | 30 |  |
| Wacissa | 42 | 17 | 7 | 8 | 2 |  |  | 25 | 40.5 | 17 | 0 | 17 |  |  | 5 | 0 | 5 |  |
| Bethel | 36 | 12 | 6 | 6 |  |  |  | 24 | 33.3 | 12 | 0 | 12 |  |  | 4 | 0 | 4 |  |
| Waukeenah | 24 | 8 | 3 | 5 |  |  |  | 16 | 33.3 | 8 | 0 | 8 |  |  | 3 | 0 | 3 |  |
| Lamont | 30 | 9 | 4 | 3 | 2 |  |  | 21 | 30.0 | 9 | 0 | 9 |  |  | 4 | 0 | 4 |  |
| Aucilla | 59 | 12 | 7 | 4 | 1 |  |  | 47 | 20.3 | 12 | 0 | 12 |  |  | 9 | 0 | 9 |  |
| Totals | 374 | 95 | 47 | 40 | 8 |  |  | 279 | 25.4 | 93 | 0 | 93 | 2 |  | 55 | 0 | 55 |  |

TABLE 10. — SPLENIC FINDINGS WITH ASSOCIATED BLOOD EXAMINATIONS, BY COUNTIES IN FLORIDA, FALL OF 1941.—(Continued.)

| County and Locality | Results of Splenic Examination | | | | | | | | Results of Blood Examination on Positive Spleens | | | | | Results of Blood Exam. on 5th Negative Spleen | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Taylor | No. Examined | No. Positive | No. P. D. I. | No. 1 | No. 2 | No. 3 | No. Negative | % Positive Spleens | No. Examined | No. Positive | No. Negative | Refused Examination | % Positive | No. Examined | No. Positive | No. Negative | % Positive |
| Pine Grove ...... | 21 | 11 | 4 | 6 | 1 | | 10 | 52.4 | 11 | 0 | 11 | | | 2 | 0 | 2 | |
| Cabbage Grove | 48 | 23 | 17 | 5 | 1 | | 25 | 47.9 | 23 | *1 | 22 | | 4.3 | 5 | 0 | 5 | |
| Steinhatchee .. | 42 | 20 | 10 | 8 | 2 | | 22 | 47.6 | 20 | 0 | 20 | | | 3 | 0 | 3 | |
| Pleasant Grove | 30 | 14 | 7 | 5 | 2 | | 16 | 46.7 | 12 | 0 | 12 | 2 | | 3 | 0 | 3 | |
| Salem .............. | 66 | 28 | 15 | 12 | 1 | | 38 | 42.4 | 27 | 0 | 27 | 1 | | 6 | 0 | 6 | |
| Shady Grove .. | 42 | 16 | 12 | 4 | | | 26 | 38.1 | 16 | 0 | 16 | | | 5 | 0 | 5 | |
| Perry .................. | 338 | 74 | 54 | 18 | 2 | | 264 | 21.9 | 72 | †1 | 71 | 2 | 1.4 | 47 | 0 | 47 | |
| Totals .......... | 587 | 186 | 119 | 58 | 9 | | 401 | 31.7 | 181 | 2 | 179 | 5 | 1.1 | 71 | 0 | 71 | |

*Cabbage Grove: P.D.I. Spleen, P. *vivax*
†Perry: P.D.I. Spleen, P. *falciparum*

| Leon | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Caroline Brevard ...... | 199 | 78 | 34 | 35 | 9 | | 121 | 39.2 | 75 | 0 | 75 | 3 | | 22 | 0 | 22 | |
| Sealey Memorial .... | 259 | 60 | 31 | 24 | 5 | | 199 | 23.2 | 59 | 0 | 59 | 1 | | 29 | 0 | 29 | |
| Woodville ......... | 63 | 30 | 11 | 14 | 5 | | 33 | 47.6 | 30 | 0 | 30 | | | 6 | 0 | 6 | |
| Miccosukee .... | 42 | 23 | 13 | 9 | 1 | | 19 | 54.8 | 23 | 0 | 23 | | | 3 | 0 | 3 | |
| Chaires ............ | 51 | 19 | 13 | 5 | 1 | | 32 | 37.3 | 19 | 0 | 19 | | | 6 | 0 | 6 | |
| Fort Braden .... | 42 | 18 | 11 | 6 | 1 | | 24 | 42.9 | 17 | 0 | 17 | 1 | | 5 | 0 | 5 | |
| Totals .......... | 656 | 228 | 113 | 93 | 22 | | 428 | 34.8 | 223 | 0 | 223 | 5 | | 71 | 0 | 71 | |

TABLE 11. — RESULTS OF BLOOD EXAMINATIONS FOR MALARIA PARASITES AS PRACTICED ROUTINELY IN THE LABORATORIES OF THE FLORIDA STATE BOARD OF HEALTH — BY YEARS.

| **Jacksonville** | **1932** | **1933** | **1934** | **1935** | **1936** | **1937** | **1938** | **1939** | **1940** | **1941** |
|---|---|---|---|---|---|---|---|---|---|---|
| Positive | 156 | 910 | 2,104 | 1,115 | 1,172 | 700 | 227 | 193 | 201 | 127 |
| Negative | 5,404 | 7,380 | 22,580 | 16,916 | 13,988 | 14,180 | 13,853 | 13,317 | 14,329 | 10,481 |
| Total | 5,560 | 8,290 | 24,684 | 18,031 | 15,160 | 14,880 | 14,080 | 13,510 | 14,530 | 10,608 |
| % Positive | 2.80 | 10.97 | 8.52 | 6.18 | 7.73 | 4.68 | 1.61 | 1.42 | 1.38 | 1.19 |
| **Miami** | | | | | | | | | | |
| Positive | 3 | 4 | 1 | 8 | 10 | 2 | 5 | 1 | 7 | 3 |
| Negative | 235 | 234 | 527 | 411 | 437 | 434 | 357 | 271 | 319 | 386 |
| Total | 238 | 238 | 528 | 419 | 447 | 436 | 362 | 272 | 326 | 389 |
| % Positive | 1.26 | 1.68 | 0.19 | 1.90 | 2.02 | 0.45 | 1.38 | 0.36 | 2.14 | 0.77 |
| **Tampa** | | | | | | | | | | |
| Positive | 132 | 430 | 542 | 647 | 335 | 220 | 71 | 30 | 18 | 20 |
| Negative | 1,938 | 2,304 | 3,287 | 3,587 | 3,055 | 3,666 | 2,253 | 2,404 | 2,377 | 1,795 |
| Total | 2,070 | 2,734 | 3,829 | 4,234 | 3,390 | 3,886 | 2,324 | 2,434 | 2,395 | 1,815 |
| % Positive | 6.37 | 15.72 | 14.15 | 15.28 | 9.73 | 5.65 | 3.05 | 1.23 | 0.75 | 1.10 |
| **Tallahassee** | | | | | | | | | | |
| Positive | 90 | 352 | 507 | 278 | 371 | 219 | 55 | 69 | 108 | 280 |
| Negative | 1,392 | 1,743 | 2,264 | 2,112 | 2,213 | 2,229 | 1,817 | 1,754 | 2,257 | 2,533 |
| Total | 1,482 | 2,095 | 2,771 | 2,390 | 2,584 | 2,448 | 1,872 | 1,823 | 2,365 | 2,813 |
| % Positive | 6.07 | 16.80 | 18.29 | 11.63 | 14.35 | 8.85 | 2.93 | 3.78 | 4.56 | 9.95 |
| **Pensacola** | | | | | | | | | | |
| Positive | 28 | 51 | 79 | 119 | 279 | 120 | 75 | 86 | 81 | 32 |
| Negative | 453 | 533 | 678 | 560 | 855 | 1,010 | 1,027 | 932 | 1,014 | 929 |
| Total | 481 | 584 | 757 | 679 | 1,134 | 1,130 | 1,102 | 1,018 | 1,095 | 961 |
| % Positive | 5.82 | 8.73 | 10.43 | 17.23 | 24.60 | 10.61 | 6.80 | 8.44 | 7.39 | 3.32 |

TABLE 12. — RESULTS OF BLOOD EXAMINATIONS FOR MALARIA PARASITES AS PRACTICED ROUTINELY IN THE LABORATORIES OF THE FLORIDA STATE BOARD OF HEALTH — BY MONTHS.

| 1932 | Jacksonville | | | | Miami | | | | Tampa | | | | Tallahassee | | | | Pensacola | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pos | Neg | Total | % Pos | Pos | Neg | Total | % Pos | Pos | Neg | Total | % Pos | Pos | Neg | Total | % Pos | Pos | Neg | Total | % Pos |
| Jan. | 7 | 394 | 401 | 1.74 | 0 | 29 | 29 | 0.00 | 12 | 143 | 155 | 7.74 | 1 | 96 | 97 | 1.02 | 1 | 19 | 20 | 5.00 |
| Feb. | 12 | 377 | 389 | 3.08 | 0 | 21 | 21 | 0.00 | 7 | 206 | 213 | 3.28 | 1 | 91 | 92 | 1.08 | 1 | 30 | 31 | 3.22 |
| Mar. | 9 | 368 | 377 | 2.38 | 0 | 7 | 7 | 0.00 | 5 | 128 | 133 | 3.76 | 6 | 84 | 90 | 6.66 | 0 | 55 | 55 | 0.00 |
| Apr. | 2 | 367 | 369 | 0.54 | 0 | 16 | 16 | 0.00 | 4 | 164 | 168 | 2.38 | 6 | 117 | 123 | 4.87 | 3 | 35 | 38 | 7.89 |
| May | 7 | 477 | 484 | 1.44 | 0 | 32 | 32 | 0.00 | 5 | 187 | 192 | 2.60 | 2 | 94 | 96 | 2.08 | 3 | 40 | 43 | 6.97 |
| June | 14 | 524 | 538 | 2.60 | 0 | 21 | 21 | 0.00 | 11 | 225 | 236 | 4.66 | 1 | 136 | 137 | 0.73 | 0 | 48 | 48 | 0.00 |
| July | 11 | 652 | 663 | 1.65 | 0 | 19 | 19 | 0.00 | 5 | 210 | 215 | 2.32 | 10 | 161 | 171 | 5.84 | 2 | 70 | 72 | 2.77 |
| Aug. | 21 | 668 | 689 | 3.04 | 0 | 21 | 21 | 0.00 | 19 | 188 | 207 | 9.17 | 10 | 141 | 151 | 6.62 | 2 | 52 | 54 | 3.70 |
| Sept. | 19 | 501 | 520 | 3.65 | 1 | 22 | 23 | 4.34 | 10 | 138 | 148 | 6.75 | 16 | 105 | 121 | 13.22 | 5 | 36 | 41 | 12.19 |
| Oct. | 17 | 400 | 417 | 4.06 | 1 | 16 | 17 | 5.88 | 17 | 131 | 148 | 12.16 | 18 | 179 | 197 | 9.13 | 10 | 36 | 46 | 12.74 |
| Nov. | 26 | 345 | 371 | 7.00 | 0 | 15 | 15 | 0.00 | 27 | 110 | 137 | 19.70 | 14 | 141 | 155 | 9.03 | 1 | 18 | 19 | 5.26 |
| Dec. | 11 | 331 | 342 | 3.21 | 1 | 16 | 17 | 5.88 | 10 | 108 | 118 | 8.47 | 5 | 47 | 52 | 9.61 | 0 | 14 | 14 | 0.00 |
| Total | 156 | 5,404 | 5,560 | 2.80 | 3 | 235 | 238 | 1.26 | 132 | 1,938 | 2,070 | 6.37 | 90 | 1,392 | 1,482 | 6.07 | 28 | 453 | 481 | 5.82 |
| **1933** | | | | | | | | | | | | | | | | | | | | |
| Jan. | 6 | 310 | 316 | 1.89 | 0 | 8 | 8 | 0.00 | 17 | 102 | 119 | 14.28 | 8 | 92 | 100 | 8.00 | 0 | 15 | 15 | 0.00 |
| Feb. | 10 | 290 | 300 | 3.33 | 0 | 8 | 8 | 0.00 | 9 | 107 | 116 | 7.75 | 9 | 95 | 104 | 8.65 | 0 | 15 | 15 | 0.00 |
| Mar. | 1 | 356 | 357 | 0.28 | 0 | 12 | 12 | 0.00 | 6 | 153 | 159 | 3.77 | 8 | 93 | 101 | 7.92 | 0 | 27 | 27 | 0.00 |
| Apr. | 5 | 347 | 352 | 1.42 | 0 | 29 | 29 | 0.00 | 7 | 125 | 132 | 5.30 | 11 | 101 | 112 | 9.82 | 2 | 23 | 25 | 8.00 |
| May | 8 | 465 | 473 | 1.69 | 3 | 28 | 31 | 9.67 | 11 | 185 | 196 | 5.61 | 7 | 156 | 163 | 4.29 | 0 | 32 | 32 | 0.00 |
| June | 27 | 757 | 784 | 3.41 | 0 | 14 | 14 | 0.00 | 31 | 212 | 243 | 12.75 | 18 | 155 | 173 | 10.40 | 3 | 45 | 48 | 6.25 |
| July | 97 | 917 | 1,014 | 9.56 | 0 | 18 | 18 | 0.00 | 58 | 263 | 321 | 18.07 | 73 | 193 | 266 | 27.44 | 9 | 63 | 72 | 12.50 |
| Aug. | 137 | 1,018 | 1,155 | 11.86 | 0 | 16 | 16 | 0.00 | 51 | 278 | 329 | 15.50 | 36 | 124 | 160 | 22.50 | 5 | 94 | 99 | 5.05 |
| Sept. | 176 | 881 | 1,057 | 16.65 | 0 | 30 | 30 | 0.00 | 56 | 244 | 300 | 18.66 | 78 | 225 | 303 | 25.74 | 11 | 82 | 93 | 11.82 |
| Oct. | 171 | 844 | 1,015 | 16.84 | 0 | 14 | 14 | 0.00 | 58 | 254 | 312 | 18.59 | 49 | 281 | 330 | 14.84 | 13 | 75 | 88 | 14.77 |
| Nov. | 202 | 642 | 844 | 23.93 | 1 | 26 | 27 | 3.70 | 80 | 186 | 266 | 30.07 | 42 | 149 | 191 | 21.99 | 6 | 44 | 50 | 12.00 |
| Dec. | 70 | 553 | 623 | 11.23 | 0 | 31 | 31 | 0.00 | 46 | 195 | 241 | 19.08 | 13 | 79 | 92 | 14.13 | 2 | 18 | 20 | 10.00 |
| Total | 910 | 7,380 | 8,290 | 10.97 | 4 | 234 | 238 | 1.68 | 430 | 2,304 | 2,734 | 15.72 | 352 | 1,743 | 2,095 | 16.80 | 51 | 533 | 584 | 8.73 |

TABLE 12. — RESULTS OF BLOOD EXAMINATIONS FOR MALARIA PARASITES AS PRACTICED ROUTINELY IN THE LABORATORIES OF THE FLORIDA STATE BOARD OF HEALTH — BY MONTHS. — Continued.

| 1934 | Jacksonville | | | | Miami | | | | Tampa | | | | Tallahassee | | | | Pensacola | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pos. | Neg. | Total | % Pos. | Pos. | Neg. | Total | % Pos. | Pos. | Neg. | Total | % Pos. | Pos. | Neg. | Total | % Pos. | Pos. | Neg. | Total | % Pos. |
| Jan. | 84 | 1,140 | 1,324 | 6.37 | 0 | 29 | 29 | 0.00 | 26 | 187 | 213 | 12.20 | 14 | 124 | 138 | 10.14 | 1 | 19 | 20 | 5.00 |
| Feb. | 178 | 2,245 | 2,423 | 7.34 | 0 | 22 | 22 | 0.00 | 13 | 168 | 181 | 7.18 | 15 | 121 | 136 | 11.03 | 0 | 20 | 20 | 0.00 |
| Mar. | 266 | 3,139 | 3,405 | 7.81 | 1 | 44 | 45 | 2.22 | 19 | 198 | 217 | 8.75 | 32 | 169 | 201 | 15.92 | 0 | 29 | 29 | 0.00 |
| Apr. | 80 | 1,909 | 1,989 | 4.02 | 0 | 49 | 49 | 0.00 | 14 | 222 | 236 | 5.93 | 45 | 184 | 229 | 19.65 | 1 | 51 | 52 | 1.92 |
| May | 66 | 1,177 | 1,243 | 5.31 | 0 | 54 | 54 | 0.00 | 38 | 304 | 342 | 11.11 | 33 | 221 | 254 | 12.99 | 3 | 44 | 47 | 6.38 |
| June | 96 | 1,236 | 1,332 | 7.28 | 0 | 63 | 63 | 0.00 | 49 | 396 | 445 | 11.01 | 46 | 220 | 266 | 17.29 | 3 | 84 | 87 | 3.44 |
| July | 121 | 1,720 | 1,741 | 6.94 | 0 | 67 | 67 | 0.00 | 60 | 347 | 407 | 14.74 | 36 | 241 | 277 | 12.99 | 9 | 100 | 109 | 8.25 |
| Aug. | 271 | 2,968 | 3,039 | 8.91 | 0 | 45 | 45 | 0.00 | 82 | 356 | 438 | 18.72 | 63 | 254 | 317 | 19.87 | 4 | 99 | 103 | 3.86 |
| Sept. | 325 | 3,182 | 3,207 | 10.13 | 0 | 51 | 51 | 0.00 | 71 | 338 | 409 | 17.42 | 52 | 189 | 241 | 21.57 | 10 | 58 | 68 | 14.70 |
| Oct. | 424 | 2,413 | 2,437 | 17.39 | 0 | 42 | 42 | 0.00 | 72 | 334 | 406 | 17.73 | 102 | 253 | 355 | 28.73 | 30 | 79 | 109 | 27.52 |
| Nov. | 132 | 860 | 992 | 13.30 | 0 | 36 | 36 | 0.00 | 66 | 249 | 315 | 20.95 | 55 | 191 | 246 | 22.34 | 17 | 66 | 83 | 20.48 |
| Dec. | 61 | 591 | 652 | 9.35 | 0 | 25 | 25 | 0.00 | 32 | 188 | 220 | 14.50 | 14 | 97 | 111 | 12.61 | 1 | 29 | 30 | 3.33 |
| Total | 2,104 | 22,580 | 24,684 | 8.52 | 1 | 527 | 528 | 0.19 | 542 | 3,287 | 3,829 | 14.15 | 507 | 2,264 | 2,771 | 18.29 | 79 | 678 | 757 | 10.43 |
| **1935** | | | | | | | | | | | | | | | | | | | | |
| Jan. | 48 | 1,039 | 1,087 | 4.41 | 0 | 23 | 23 | 0.00 | 14 | 177 | 191 | 7.32 | 8 | 150 | 158 | 5.06 | 0 | 27 | 27 | 0.00 |
| Feb. | 52 | 1,176 | 1,228 | 4.24 | 3 | 30 | 33 | 9.09 | 21 | 163 | 184 | 11.41 | 7 | 97 | 104 | 6.73 | 3 | 35 | 38 | 7.89 |
| Mar. | 41 | 884 | 925 | 4.43 | 1 | 45 | 46 | 2.17 | 16 | 276 | 292 | 5.47 | 17 | 109 | 126 | 13.49 | 0 | 21 | 21 | 0.00 |
| Apr. | 69 | 1,378 | 1,447 | 4.77 | 1 | 34 | 35 | 2.85 | 42 | 308 | 350 | 12.00 | 4 | 104 | 108 | 3.70 | 1 | 42 | 43 | 2.32 |
| May | 76 | 1,456 | 1,532 | 4.96 | 1 | 35 | 36 | 2.77 | 53 | 383 | 436 | 12.15 | 21 | 260 | 281 | 7.47 | 1 | 57 | 58 | 1.72 |
| June | 110 | 1,276 | 1,386 | 7.93 | 1 | 35 | 36 | 2.77 | 103 | 416 | 519 | 19.65 | 28 | 278 | 306 | 9.15 | 5 | 56 | 61 | 8.19 |
| July | 100 | 1,530 | 1,630 | 6.13 | 1 | 49 | 50 | 2.00 | 90 | 428 | 518 | 17.37 | 40 | 235 | 275 | 14.54 | 17 | 66 | 83 | 20.48 |
| Aug. | 97 | 1,704 | 1,801 | 5.38 | 0 | 32 | 32 | 0.00 | 59 | 396 | 455 | 13.09 | 22 | 224 | 246 | 8.94 | 14 | 56 | 70 | 20.00 |
| Sept. | 137 | 1,337 | 1,474 | 9.24 | 0 | 32 | 32 | 0.00 | 53 | 304 | 357 | 14.84 | 21 | 103 | 124 | 16.89 | 21 | 53 | 74 | 28.37 |
| Oct. | 102 | 1,564 | 1,666 | 6.12 | 0 | 37 | 37 | 0.00 | 48 | 319 | 367 | 13.07 | 41 | 234 | 275 | 14.90 | 42 | 83 | 125 | 33.60 |
| Nov. | 172 | 1,611 | 1,783 | 9.64 | 0 | 33 | 33 | 0.00 | 98 | 234 | 332 | 29.51 | 55 | 201 | 256 | 21.48 | 13 | 42 | 55 | 23.63 |
| Dec. | 111 | 1,961 | 2,072 | 5.35 | 0 | 26 | 26 | 0.00 | 50 | 183 | 233 | 21.45 | 14 | 117 | 131 | 10.68 | 2 | 22 | 24 | 8.33 |
| Total | 1,115 | 16,916 | 18,031 | 6.18 | 8 | 411 | 419 | 1.90 | 647 | 3,587 | 4,234 | 15.28 | 278 | 2,112 | 2,390 | 11.63 | 119 | 560 | 679 | 17.23 |

TABLE 12. — RESULTS OF BLOOD EXAMINATIONS FOR MALARIA PARASITES AS PRACTICED ROUTINELY IN THE LABORATORIES OF THE FLORIDA STATE BOARD OF HEALTH — BY MONTHS. — Continued.

| 1936 | Jacksonville | | | | Miami | | | | Tampa | | | | Tallahassee | | | | Pensacola | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pos. | Neg. | Total | % Pos. | Pos. | Neg. | Total | % Pos. | Pos. | Neg. | Total | % Pos. | Pos. | Neg. | Total | % Pos. | Pos. | Neg. | Total | % Pos. |
| Jan. | 78 | 1,150 | 1,228 | 6.35 | 0 | 37 | 37 | 0.00 | 6 | 212 | 218 | 2.75 | 11 | 124 | 135 | 8.14 | 1 | 20 | 21 | 4.76 |
| Feb. | 44 | 752 | 796 | 5.52 | 0 | 33 | 33 | 0.00 | 10 | 176 | 186 | 5.37 | 8 | 103 | 111 | 7.20 | 2 | 18 | 20 | 10.00 |
| Mar. | 21 | 818 | 839 | 2.50 | 0 | 32 | 32 | 0.00 | 11 | 241 | 252 | 4.36 | 13 | 147 | 160 | 8.12 | 4 | 30 | 34 | 11.76 |
| Apr. | 46 | 1,765 | 1,811 | 2.54 | 3 | 34 | 37 | 8.10 | 20 | 257 | 277 | 7.22 | 10 | 119 | 129 | 7.75 | 6 | 41 | 47 | 12.76 |
| May | 61 | 1,205 | 1,266 | 4.81 | 1 | 41 | 42 | 2.38 | 27 | 274 | 301 | 8.97 | 14 | 198 | 212 | 6.59 | 7 | 56 | 61 | 11.47 |
| June | 116 | 1,248 | 1,364 | 8.50 | 0 | 25 | 25 | 0.00 | 48 | 327 | 375 | 12.80 | 45 | 244 | 289 | 15.57 | 22 | 96 | 118 | 18.64 |
| July | 147 | 1,309 | 1,456 | 10.09 | 0 | 47 | 47 | 0.00 | 55 | 364 | 419 | 13.12 | 73 | 325 | 398 | 18.34 | 23 | 118 | 141 | 16.31 |
| Aug. | 151 | 1,591 | 1,642 | 9.19 | 6 | 32 | 38 | 15.78 | 38 | 305 | 343 | 11.07 | 18 | 135 | 153 | 11.76 | 42 | 112 | 154 | 27.27 |
| Sept. | 146 | 1,466 | 1,612 | 9.05 | 0 | 47 | 47 | 0.00 | 38 | 294 | 332 | 11.44 | 52 | 305 | 357 | 14.56 | 38 | 109 | 147 | 25.85 |
| Oct. | 197 | 1,151 | 1,348 | 14.61 | 0 | 47 | 47 | 0.00 | 40 | 280 | 320 | 12.50 | 91 | 252 | 343 | 26.53 | 84 | 124 | 208 | 40.38 |
| Nov. | 96 | 764 | 860 | 11.15 | 0 | 24 | 24 | 0.00 | 23 | 165 | 188 | 12.23 | 28 | 163 | 191 | 14.65 | 40 | 85 | 125 | 32.00 |
| Dec. | 69 | 769 | 838 | 8.23 | 0 | 38 | 38 | 0.00 | 9 | 160 | 169 | 5.32 | 8 | 98 | 106 | 7.54 | 10 | 46 | 56 | 17.85 |
| Total | 1,172 | 13,988 | 15,160 | 7.73 | 10 | 437 | 447 | 2.02 | 335 | 3,055 | 3,390 | 9.73 | 371 | 2,213 | 2,548 | 14.35 | 279 | 855 | 1,134 | 24.60 |
| 1937 | | | | | | | | | | | | | | | | | | | | |
| Jan. | 33 | 875 | 908 | 3.63 | 0 | 37 | 37 | 0.00 | 7 | 202 | 209 | 3.34 | 13 | 143 | 156 | 8.32 | 5 | 41 | 46 | 10.86 |
| Feb. | 58 | 790 | 848 | 6.83 | 1 | 30 | 31 | 3.22 | 14 | 158 | 172 | 8.13 | 10 | 127 | 137 | 7.29 | 2 | 30 | 32 | 6.43 |
| Mar. | 43 | 1,017 | 1,060 | 4.05 | 0 | 36 | 36 | 0.00 | 19 | 210 | 229 | 8.29 | 17 | 140 | 157 | 10.82 | 7 | 60 | 67 | 10.44 |
| Apr. | 52 | 1,202 | 1,254 | 4.14 | 0 | 40 | 40 | 0.00 | 16 | 231 | 247 | 6.47 | 18 | 302 | 320 | 5.62 | 4 | 55 | 59 | 6.77 |
| May | 46 | 1,426 | 1,472 | 3.12 | 0 | 24 | 24 | 0.00 | 21 | 283 | 304 | 6.90 | 19 | 240 | 259 | 7.36 | 12 | 104 | 116 | 10.34 |
| June | 79 | 1,483 | 1,562 | 5.05 | 0 | 38 | 38 | 0.00 | 41 | 513 | 554 | 7.40 | 17 | 264 | 281 | 6.04 | 14 | 132 | 146 | 9.52 |
| July | 101 | 1,664 | 1,765 | 5.72 | 1 | 30 | 31 | 3.22 | 22 | 531 | 553 | 3.97 | 23 | 142 | 165 | 13.93 | 7 | 172 | 179 | 3.91 |
| Aug. | 101 | 1,534 | 1,635 | 6.17 | 0 | 53 | 53 | 0.00 | 28 | 381 | 409 | 6.84 | 42 | 274 | 316 | 13.29 | 17 | 121 | 138 | 12.31 |
| Sept. | 56 | 1,472 | 1,528 | 3.66 | 0 | 53 | 53 | 0.00 | 19 | 449 | 468 | 4.06 | 34 | 256 | 290 | 11.74 | 14 | 113 | 127 | 11.02 |
| Oct. | 63 | 1,089 | 1,152 | 5.46 | 0 | 40 | 40 | 0.00 | 22 | 403 | 425 | 5.17 | 22 | 184 | 206 | 10.67 | 27 | 81 | 108 | 25.00 |
| Nov. | 48 | 944 | 992 | 4.83 | 0 | 24 | 24 | 0.00 | 7 | 174 | 181 | 3.86 | 2 | 51 | 53 | 3.77 | 8 | 65 | 73 | 10.95 |
| Dec. | 20 | 684 | 704 | 2.84 | 0 | 29 | 29 | 0.00 | 4 | 131 | 135 | 2.96 | 2 | 106 | 108 | 1.85 | 3 | 36 | 39 | 7.68 |
| Total | 700 | 14,180 | 14,880 | 4.68 | 2 | 434 | 436 | 0.45 | 220 | 3,666 | 3,886 | 5.65 | 219 | 2,229 | 2,448 | 8.85 | 120 | 1,010 | 1,130 | 10.61 |

TABLE 12. — RESULTS OF BLOOD EXAMINATIONS FOR MALARIA PARASITES AS PRACTICED ROUTINELY IN THE LABORATORIES OF THE FLORIDA STATE BOARD OF HEALTH — BY MONTHS. — Continued.

| 1938 | Jacksonville | | | | Miami | | | | Tampa | | | | Tallahassee | | | | Pensacola | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pos. | Neg. | Total | % Pos. | Pos. | Neg. | Total | % Pos. | Pos. | Neg. | Total | % Pos. | Pos. | Neg. | Total | % Pos. | Pos. | Neg. | Total | % Pos. |
| Jan. | 9 | 783 | 792 | 1.01 | 0 | 28 | 28 | 0.00 | 1 | 155 | 156 | 0.64 | 2 | 88 | 90 | 2.22 | 0 | 29 | 29 | 0.00 |
| Feb. | 11 | 886 | 897 | 1.22 | 0 | 38 | 38 | 0.00 | 3 | 184 | 187 | 1.60 | 2 | 86 | 88 | 2.27 | 0 | 50 | 50 | 0.00 |
| Mar. | 13 | 1,196 | 1,209 | 1.07 | 0 | 45 | 45 | 0.00 | 7 | 180 | 187 | 3.74 | 2 | 118 | 120 | 1.66 | 1 | 74 | 75 | 1.33 |
| Apr. | 14 | 1,132 | 1,146 | 1.22 | 1 | 29 | 30 | 3.33 | 10 | 210 | 220 | 4.54 | 4 | 156 | 160 | 2.50 | 2 | 87 | 89 | 2.24 |
| May | 24 | 1,414 | 1,438 | 1.66 | 0 | 20 | 20 | 0.00 | 8 | 233 | 241 | 3.31 | 4 | 232 | 238 | 1.69 | 2 | 114 | 116 | 1.72 |
| June | 24 | 1,449 | 1,473 | 1.62 | 0 | 27 | 27 | 0.00 | 3 | 213 | 216 | 1.29 | 10 | 213 | 223 | 4.48 | 9 | 137 | 146 | 6.16 |
| July | 27 | 1,426 | 1,453 | 1.85 | 0 | 27 | 27 | 0.00 | 2 | 205 | 207 | 0.99 | 5 | 215 | 220 | 2.27 | 13 | 105 | 118 | 11.01 |
| Aug. | 30 | 1,649 | 1,679 | 1.78 | 3 | 38 | 41 | 7.31 | 16 | 220 | 236 | 6.77 | 7 | 298 | 305 | 2.29 | 11 | 129 | 140 | 7.85 |
| Sept. | 25 | 1,412 | 1,437 | 1.73 | 1 | 41 | 42 | 2.38 | 6 | 210 | 216 | 2.77 | 4 | 125 | 129 | 3.10 | 14 | 121 | 135 | 10.37 |
| Oct. | 27 | 976 | 1,003 | 2.69 | 0 | 25 | 25 | 0.00 | 7 | 147 | 154 | 4.54 | 6 | 159 | 165 | 3.63 | 13 | 87 | 100 | 13.00 |
| Nov. | 12 | 877 | 889 | 1.34 | 0 | 19 | 19 | 0.00 | 4 | 177 | 181 | 2.20 | 8 | 94 | 102 | 7.84 | 7 | 69 | 76 | 9.21 |
| Dec. | 11 | 653 | 664 | 1.65 | 0 | 22 | 22 | 0.00 | 8 | 119 | 127 | 6.29 | 1 | 33 | 34 | 2.94 | 3 | 25 | 28 | 10.71 |
| Total | 227 | 13,853 | 14,080 | 1.61 | 5 | 357 | 362 | 1.38 | 71 | 2,253 | 2,324 | 3.05 | 55 | 1,817 | 1,872 | 2.93 | 75 | 1,027 | 1,102 | 6.80 |
| 1939 | | | | | | | | | | | | | | | | | | | | |
| Jan. | 3 | 880 | 883 | 0.33 | 0 | 21 | 21 | 0.00 | 1 | 158 | 159 | 0.62 | 1 | 41 | 42 | 2.38 | 0 | 36 | 36 | 0.00 |
| Feb. | 4 | 893 | 897 | 0.44 | 0 | 23 | 23 | 0.00 | 3 | 167 | 170 | 1.76 | 0 | 71 | 71 | 0.00 | 3 | 40 | 43 | 6.97 |
| Mar. | 6 | 1,030 | 1,036 | 0.57 | 0 | 25 | 25 | 0.00 | 0 | 200 | 200 | 0.00 | 1 | 110 | 111 | 0.90 | 1 | 45 | 46 | 2.17 |
| Apr. | 6 | 894 | 900 | 0.66 | 0 | 15 | 15 | 0.00 | 3 | 201 | 204 | 1.47 | 2 | 123 | 125 | 1.60 | 0 | 46 | 46 | 0.00 |
| May | 16 | 1,343 | 1,359 | 1.17 | 0 | 20 | 20 | 0.00 | 2 | 263 | 265 | 0.75 | 0 | 139 | 139 | 0.00 | 3 | 43 | 46 | 6.52 |
| June | 10 | 1,509 | 1,519 | 0.65 | 0 | 24 | 24 | 0.00 | 1 | 210 | 211 | 0.47 | 1 | 139 | 140 | 0.71 | 2 | 99 | 101 | 1.98 |
| July | 18 | 1,378 | 1,396 | 1.28 | 0 | 32 | 32 | 0.00 | 3 | 246 | 249 | 1.20 | 8 | 187 | 195 | 4.10 | 4 | 148 | 152 | 2.63 |
| Aug. | 25 | 1,456 | 1,481 | 1.68 | 0 | 32 | 32 | 0.00 | 2 | 221 | 223 | 0.89 | 9 | 171 | 180 | 5.00 | 4 | 137 | 141 | 2.83 |
| Sept. | 31 | 1,197 | 1,228 | 2.52 | 0 | 19 | 19 | 0.00 | 5 | 246 | 251 | 1.99 | 11 | 191 | 202 | 5.44 | 5 | 117 | 122 | 4.09 |
| Oct. | 44 | 1,142 | 1,186 | 3.70 | 0 | 22 | 22 | 0.00 | 8 | 235 | 243 | 3.29 | 22 | 185 | 207 | 10.62 | 34 | 81 | 115 | 29.56 |
| Nov. | 22 | 1,021 | 1,043 | 2.10 | 1 | 23 | 24 | 4.17 | 1 | 142 | 143 | 0.69 | 10 | 289 | 299 | 3.34 | 22 | 80 | 102 | 21.56 |
| Dec. | 8 | 574 | 582 | 1.37 | 0 | 15 | 15 | 0.00 | 1 | 115 | 116 | 0.86 | 4 | 108 | 112 | 3.57 | 8 | 60 | 68 | 11.73 |
| Total | 193 | 13,317 | 13,510 | 1.42 | 1 | 271 | 272 | 0.36 | 30 | 2,404 | 2,434 | 1.23 | 69 | 1,754 | 1,823 | 3.78 | 86 | 932 | 1,018 | 8.44 |

TABLE 12. — RESULTS OF BLOOD EXAMINATIONS FOR MALARIA PARASITES AS PRACTICED ROUTINELY IN THE LABORATORIES OF THE FLORIDA STATE BOARD OF HEALTH — BY MONTHS. — Continued.

| 1940 | Jacksonville | | | | Miami | | | | Tampa | | | | Tallahassee | | | | Pensacola | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pos. | Neg. | Total | % Pos. | Pos. | Neg. | Total | % Pos. | Pos. | Neg. | Total | % Pos. | Pos. | Neg. | Total | % Pos. | Pos. | Neg. | Total | % Pos. |
| Jan. | 8 | 602 | 610 | 1.31 | 0 | 21 | 21 | 0.00 | 0 | 243 | 243 | 0.00 | 1 | 85 | 86 | 1.16 | 4 | 42 | 44 | 9.09 |
| Feb. | 2 | 709 | 711 | 0.28 | 0 | 12 | 12 | 0.00 | 3 | 227 | 230 | 1.30 | 2 | 80 | 82 | 2.44 | 2 | 52 | 54 | 3.70 |
| Mar. | 8 | 1,130 | 1,138 | 0.70 | 0 | 18 | 18 | 0.00 | 1 | 147 | 148 | 0.67 | 1 | 158 | 159 | 0.62 | 1 | 59 | 60 | 1.85 |
| Apr. | 16 | 1,468 | 1,484 | 1.07 | 0 | 20 | 20 | 0.00 | 2 | 152 | 154 | 1.29 | 4 | 168 | 172 | 2.32 | 2 | 61 | 63 | 3.17 |
| May | 33 | 1,422 | 1,455 | 2.26 | 0 | 25 | 25 | 0.00 | 2 | 222 | 224 | 0.89 | 0 | 181 | 181 | 0.00 | 2 | 46 | 48 | 4.16 |
| June | 21 | 1,563 | 1,584 | 1.32 | 0 | 38 | 38 | 0.00 | 1 | 296 | 297 | 0.33 | 6 | 231 | 237 | 2.53 | 4 | 86 | 90 | 4.44 |
| July | 25 | 2,050 | 2,075 | 1.20 | 1 | 28 | 29 | 3.44 | 4 | 352 | 356 | 1.12 | 11 | 255 | 266 | 4.13 | 8 | 101 | 109 | 7.33 |
| Aug. | 20 | 1,477 | 1,497 | 1.33 | 1 | 34 | 35 | 2.85 | 0 | 252 | 252 | 0.00 | 23 | 289 | 312 | 7.37 | 13 | 170 | 183 | 7.10 |
| Sept. | 21 | 1,107 | 1,128 | 1.86 | 4 | 24 | 28 | 14.28 | 3 | 169 | 172 | 1.74 | 24 | 231 | 255 | 9.41 | 28 | 199 | 227 | 12.33 |
| Oct. | 26 | 1,073 | 1,099 | 2.36 | 0 | 41 | 41 | 0.00 | 0 | 115 | 115 | 0.00 | 22 | 203 | 225 | 9.77 | 12 | 110 | 122 | 9.83 |
| Nov. | 15 | 910 | 925 | 1.62 | 1 | 33 | 34 | 2.91 | 1 | 97 | 98 | 1.02 | 9 | 97 | 106 | 8.49 | 3 | 61 | 64 | 4.68 |
| Dec. | 6 | 818 | 824 | 0.72 | 0 | 25 | 25 | 0.00 | 1 | 105 | 106 | 0.94 | 5 | 279 | 284 | 1.76 | 2 | 27 | 29 | 6.89 |
| Total | 201 | 14,329 | 14,530 | 1.38 | 7 | 319 | 326 | 2.14 | 18 | 2,377 | 2,395 | 0.75 | 108 | 2,257 | 2,365 | 4.56 | 81 | 1,014 | 1,095 | 7.39 |
| 1941 | | | | | | | | | | | | | | | | | | | | |
| Jan. | 5 | 621 | 626 | 0.79 | 0 | 22 | 22 | 0.00 | 1 | 84 | 85 | 1.17 | 1 | 131 | 132 | 0.75 | 0 | 28 | 28 | 0.00 |
| Feb. | 2 | 562 | 564 | 0.34 | 0 | 19 | 19 | 0.00 | 2 | 83 | 85 | 2.35 | 8 | 71 | 79 | 10.12 | 0 | 45 | 45 | 0.00 |
| Mar. | 11 | 655 | 666 | 1.65 | 1 | 24 | 25 | 4.00 | 2 | 111 | 113 | 1.76 | 8 | 119 | 127 | 6.29 | 3 | 57 | 60 | 5.00 |
| Apr. | 7 | 709 | 716 | 0.97 | 0 | 41 | 41 | 0.00 | 2 | 133 | 135 | 1.48 | 31 | 192 | 223 | 13.90 | 3 | 50 | 53 | 5.66 |
| May | 13 | 942 | 955 | 1.36 | 0 | 36 | 36 | 0.00 | 1 | 161 | 162 | 0.61 | 33 | 337 | 370 | 8.91 | 6 | 101 | 107 | 5.60 |
| June | 9 | 1,043 | 1,052 | 0.85 | 0 | 42 | 42 | 0.00 | 1 | 166 | 167 | 0.59 | 20 | 325 | 345 | 5.79 | 4 | 113 | 117 | 3.41 |
| July | 16 | 1,170 | 1,186 | 1.34 | 1 | 39 | 40 | 2.50 | 2 | 216 | 218 | 0.91 | 56 | 323 | 379 | 14.77 | 4 | 115 | 119 | 3.36 |
| Aug. | 11 | 1,514 | 1,525 | 0.72 | 0 | 37 | 37 | 0.00 | 2 | 257 | 259 | 0.77 | 8 | 254 | 262 | 3.05 | 4 | 146 | 150 | 2.66 |
| Sept. | 10 | 1,123 | 1,133 | 0.88 | 0 | 42 | 42 | 0.00 | 2 | 190 | 192 | 1.04 | 54 | 286 | 340 | 15.88 | 1 | 120 | 121 | 0.82 |
| Oct. | 16 | 963 | 979 | 1.63 | 1 | 28 | 29 | 3.44 | 0 | 192 | 192 | 0.00 | 43 | 227 | 270 | 15.92 | 0 | 97 | 97 | 0.00 |
| Nov. | 10 | 637 | 647 | 1.54 | 0 | 32 | 32 | 0.00 | 4 | 95 | 99 | 4.04 | 13 | 169 | 182 | 7.14 | 1 | 33 | 34 | 2.94 |
| Dec. | 17 | 544 | 561 | 3.03 | 0 | 24 | 24 | 0.00 | 1 | 107 | 108 | 0.92 | 5 | 99 | 104 | 4.80 | 6 | 24 | 30 | 20.00 |
| Total | 127 | 10,481 | 10,608 | 1.19 | 3 | 386 | 389 | 0.77 | 20 | 1,795 | 1,815 | 1.10 | 280 | 2,533 | 2,813 | 9.95 | 32 | 929 | 961 | 3.32 |

will be made on all. One group will be treated adequately with quinine, the other left untreated. Periodic splenic and blood examinations will be made subsequently on all, to demonstrate the effect of treatment on the spleen as compared with the untreated group.

### W. P. A. ASSISTANCE

Before the declaration of war by the United States, it was practically impossible to secure W. P. A. assistance for drainage projects unless these projects were associated with military bases. Since the declaration of war, the Director of the Bureau has been informed that absolutely no drainage projects except those of a defense nature will be considered.

In association with this decision, however, we were informed that in all probability a new W. P. A. project for malaria control in Pensacola for 1942 could be written.

### FARM SECURITY ADMINISTRATION ASSISTANCE

The State Director of the Farm Security Administration was approached to the end of securing funds for a screening program in all counties where malaria was found to be a problem as demonstrated by the clinical survey and where Farm Security Loan clients resided. The proposed cooperative program was outlined to function in the same manner as the similar work being conducted in Escambia County, where the County Malaria Department cooperates with the Farm Security Administration. It was planned that the Farm Security Administration supply funds for mosquito proofing the houses of their clients.

During the interval between the time when this proposition was submitted and the time when a probably satisfactory resolution was to be made, again the declaration of war made it impossible for the agency to consider the proposal at this time.

### PROJECTED IMMEDIATE FUTURE ACTIVITIES

Clinical and entomological studies have been terminated in eight different counties in sufficient detail to permit of the inauguration of plans for control work.

Clinical survey material could not be secured before the period, October and November, of the present year when these surveys must be made. Nearly all local budgets in Florida operate on a fiscal year beginning September or October 1. Before control works can be inaugurated, finances must be secured from local appropriating bodies.

An attempt to secure such finances will be made in the following counties: Taylor, Gadsden, Leon, Madison, and Jefferson.

From experience to date relative to promotion of activities for funds for local control, it is believed that difficulties may be encountered because of the war demands on finances and because budgets for the fiscal year, October, 1941, to September, 1942, were operative before the status of malaria in the communities throughout the state could be known.

It has been impossible to complete general and basic studies for evaluation of types of control in any county since the Bureau has had no engineering staff to study the possibility of drainage or make estimates of the cost of such drainage.

## ESCAMBIA COUNTY MALARIA DEPARTMENT

### JANUARY 1—DECEMBER 31, 1941

The Escambia County Malaria Department functioned with a reduced personnel from January, 1941, as Mr. D. B. Lee, the engineer, was transferred to Jacksonville at the beginning of the year to assume charge of the directorship of the Bureau of Engineering in the State Board of Health.

In July, both Dr. Elmendorf and Mr. Mulrennan were transferred to Jacksonville to serve as director, ad interim, and entomologist, respectively, of the new Bureau of Malaria Control of the State Board of Health.

The new director for the Escambia County Malaria Department, Mr. E. B. Barnawell, sanitary engineer, assumed charge of his duties on the 1st of July and functioned as director for the remainder of the year.

The transfer of personnel was accomplished with no interruption in the work of the Escambia County department. The transition of the department from one supervised by personnel of the Rockefeller Foundation Field Staff to that of a division of the local health service, was effected with no curtailment in the programs of draining, screening, training of personnel and collection of routine data. Mr. Barnawell was assisted throughout the summer and fall by Dr. Elmendorf and Mr. Mulrennan as well as by visits from Mr. Lee and local assistance rendered by Dr. Stebbins, director of the Escambia County Health Department.

### FINANCIAL

The allocation of all funds by both City and County correspond to a fiscal year, October 1 to September 30, with tentative budgets approved in July. Presentations were made to both City and County some months prior to July, 1941, relative to funds for malaria control for the ensuing fiscal year, with the result that the City voted $4,000 and the County $2,000 for malaria control operation for their fiscal year, October 1, 1941, to September 30, 1942, thus assuring the continuance of operations of the department at least to the degree that any assurance can be given relative to City and County affairs. The sum of $3,000 was requested from the County, but it was impossible to secure that amount this year. However, the total of $6,000 is sufficient to continue the activities of the department.

A special item of $2,000 was included in the budget of the Rockefeller Foundation to assist in defraying the expense of $3,000 corresponding to Mr. Barnawell's salary and travel.

The total allocation of funds for the malaria activities of Escambia County are, then, as follows:

| | | |
|---|---|---|
| 1. | Salary local director of malaria unit at $200 per month | $2,400 |
| 2. | Travel for local director of malaria unit at $50 per month | 600 |
| 3. | Local works of drainage and fill and possibly emergency larviciding | 3,500 |
| 4. | County screening program | 1,500 |
| | | $8,000 |

Source of funds:

| | |
|---|---|
| City of Pensacola | $ 4,000.00 |
| County of Escambia | 2,000.00 |
| Rockefeller Foundation | 2,000.00 |
| | $ 8,000.00 |

The salary of the local director, Mr. Barnawell, is administered entirely by the State Board of Health, as both City and County send $500 each yearly to augment the sum of $2,000 sent by the Rockefeller Foundation to the State Board of Health for this end. These sums have already been paid to the State Board of Health for the fiscal year, 1941-1942. The balance of the local funds, $3,500 from the City and $1,500 from the County, are administered locally, payments for materials and labor being made directly by City and County authorities against receipts presented and countersigned by the local director of the malaria department.

To develop the program in accordance with plans and needs, it will be necessary in the future to secure a larger proportion of funds from the County for the prosecution of mosquito proofing. The sum of $2,000 is not sufficient to permit of a normal development of this program, especially as $500 of this sum is devoted toward the salary of the local director. Furthermore, in the future, when the cooperation of the Rockefeller Foundation ceases, the portion of the salary of the local director of $2,000, now being contributed by the Rockefeller Foundation, will have to be absorbed by the local agencies.

At the present time, the demand for screening is in excess of the financial ability of the department to meet this demand. An ultimate budget of $5,000 yearly from the County should be secured to meet adequately the demands of this program.

The local situation existing between County and City at the present time is such that neither agency will permit funds to be transferred to defray expenses of execution of works falling within the jurisdiction of the other.

The finances for labor on the drainage and fill program were supplied throughout the year, almost entirely by a W. P. A. project of $43,982.00, which began to function February 24, 1941, and which, at the end of the year, still had a considerable balance in its favor.

A new project will soon be submitted to W. P. A. for the continuance of the remainder of the work of drainage and fill left to be completed in Pensacola.

## PRESENT ORGANIZATION OF THE DEPARTMENT

Since July 1, the entire full-time personnel of the malaria department consisted of the sanitary engineer, Mr. Barnawell. Dr. Stebbins, director of the Escambia County Health Unit, is immediately in charge of the activities of the department. It is a fixed obligation of the personnel of the Bureau of Malaria Control to supervise the work of the county malaria department and to give advice and counsel. The local director reports to the Bureau of Malaria Control with the knowledge and approval of Dr. Stebbins.

Secretarial assistance is rendered by the secretary of the local County Health Unit and incidental office expenses are defrayed from the corresponding item of the budget of the County department.

It is planned in the future that the sanitary engineer, now in charge of the department and engaged only in work of malaria control, shall become the sanitary engineer for Pensacola and Escambia County, embracing all works corresponding to engineering in public health.

## CONTINUANCE OF SURVEYS (CLINICAL AND ENTOMOLOGICAL)

In continuation of the procedure of the last four years, a clinical survey was performed in all white schools in Pensacola. All children attending school between the ages of five and twelve were examined for splenic enlargement. Also blood smears were taken from all children with splenomegaly and from each fifth child found negative for splenic enlargement. In all, 2,896 children were examined in this survey. (See Table 3, page 29.)

## TABLE 13. PRESENCE AND ABSENCE OF ANOPHELINES OVER A FOUR-YEAR PERIOD IN AREAS BEFORE AND AFTER PERMANENT CONTROL MEASURES.
## CITY OF PENSACOLA

| YEARS | AREAS | SEWERAGE | DRY DOCK | HATTON | FOUNDRY | SPEARMAN | SQUATTER-VILLE | KUPFRIAN PARK |
|---|---|---|---|---|---|---|---|---|
| | 1938 | A | A | A | A | A | A | A |
| | 1939 | A | A | A | A | A | A | A |
| | 1940 | ☐ | ☐ | ☐ | A | A | A | A |
| | 1941 | ☐ | ☐ | ☐ | ☐ | ☐ | A | A |

A PRESENCE OF ANOPHELINES CONTROL INCOMPLETE

☐ ABSENCE OF ANOPHELINES CONTROL COMPLETE, PERMANENT

**PRESENTATION OF DATA BASED ON WEEKLY ROUTINE CAPTURES DURING BREEDING SEASON FOR THREE AND ONE-HALF YEARS; LAST SIX MONTHS OF 1941 BASED ON TWO CAPTURES (AUGUST AND OCTOBER).**

**Each area where control work has been completed shows a complete absence of anophelines as measured by larval collections and routine adult captures.**

**Squatterville and Kupfrian Park, uncontrolled to date, show presence of anophelines.**

TABLE 14.—AVERAGE PER MAN-HOUR FEMALE ANOPHELINE PRODUCTION, DIFFERENT CONTROL AREAS IN PENSACOLA, 1938, 1939, 1940 AND 1941.

| AREAS | CONTROLLED | | | | PARTIAL CONTROL | | | | | | NO CONTROL | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Sewage | | Dry Dock | | Hatton | | Foundry | | Spearman | | Squatterville | | Kupfrian Park | |
| Anophelines | C | Q | C | Q | C | Q | C | Q | C | Q | C | Q | C | Q |
| 1938 | 0.0 | 0.2 | 0.0 | 0.19 | 9.2 | 0.39 | 1.05 | 0.21 | 1.09 | 0.65 | 34.3 | 2.9 | 54.7 | 3.6 |
| 1939 | 0.0 | 0.14 | 0.76 | 0.0 | 7.9 | 14.2 | 4.8 | 0.66 | 7.9 | 4.4 | 121.9 | 2.9 | 58.6 | 32.0 |
| 1940 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.01 | 0.0 | 6.9 | 1.6 | 43.2 | 3.5 | 87.9 | 40.6 |
| 1941 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 10.7 | 0.51 | 8.6 | 1.5 |

Controlled Areas: Sewage Disposal, Partial Control, 1938; Final Control, End of 1939; Dry Dock, Partial Control, 1938; Final Control, End of 1939.

Partial Control Areas: Hatton Area, 95% Controlled During 1940; Foundry Area, Controlled During 1940; Terminated, End of 1940; Spearman Area, Controlled End of 1940.

No Control Areas: Squatterville, Partial Control, 1941; Kupfrian Park, yet to be Controled.

Beginning with the advent of the breeding season in the spring, routine entomological studies were made until the end of June, when the department was transferred to the new assignment in Jacksonville. Following this transfer, two complete surveys were made by Mr. Mulrennan, one in August and one in October, the latter date just prior to the close of the breeding season.

Though routine catches were made at the regular catching stations, beginning with the first of March, the first anophelines to be found were three females and one male A. *crucians* captured at the locality known as Squatterville on April 22. *Anopheles quadrimaculatus* first made their appearance in the capture practiced on July 5 at Station Number 2, Squatterville. (For dates of the first appearance of anophelines by years, see Tables 13-16.)

It is to be regretted that for lack of personnel during 1937, routine captures were not made before the effects of control work became apparent in the Sewage Disposal and Drydock areas. Accordingly, results cannot be evaluated by comparison with the same area. However, in the case of Squatterville and Kupfrian Park, data is available for three years before control work was instituted and in this instance, the effects of drainage on presence and destiny of anophelines can be measured directly against the same production area. (See Table 16.)

TABLE 15.—NUMBER OF INSPECTIONS AND ANOPHELINE FEMALES CAPTURED FROM TWENTY-FOUR STATIONS, PENSACOLA, 1941.

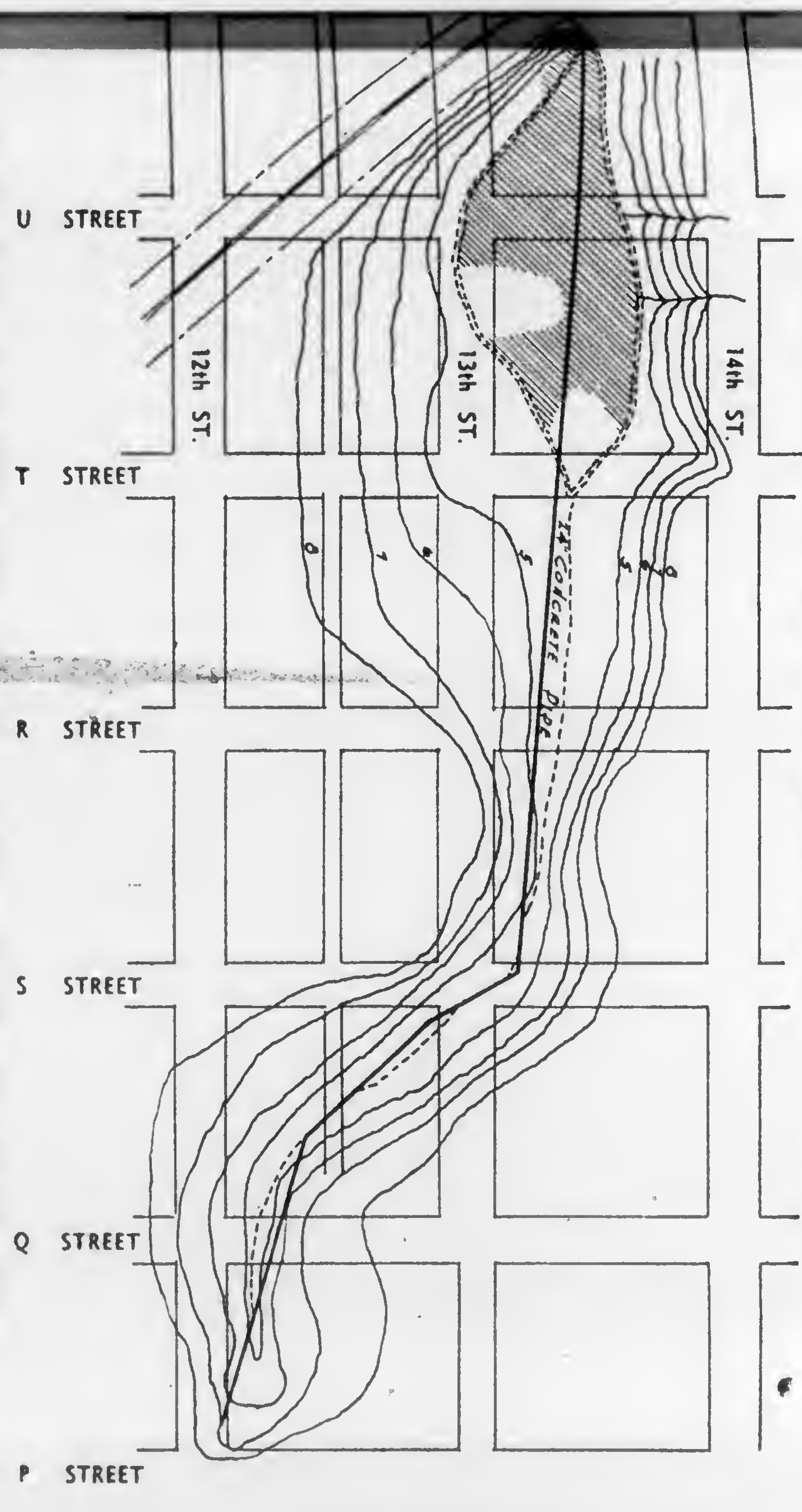
| MONTH | Number of Inspections | Number of Females Captured | | Number of Females Captured per Man-Hour | | Number Hours Spent in Capture |
|---|---|---|---|---|---|---|
| | | Crucians | "Quads" | Crucians | "Quads" | |
| March | 4 | 0 | 0 | 0.0 | 0.0 | 10.8 |
| April | 5 | 6 | 0 | 0.44 | 0.0 | 13.6 |
| May | 3 | 5 | 0 | 0.58 | 0.0 | 8.6 |
| July | 1 | 21 | 3 | 7.0 | 1.0 | 3.0 |
| August | 1 | 18 | 3 | 6.2 | 1.03 | 2.9 |
| October | 1 | 0 | 0 | 0.0 | 0.0 | 2.7 |
| TOTAL | 15 | 50 | 6 | ........... | ........... | 41.6 |

TABLE 16.—TOTAL NUMBER OF ANOPHELINE FEMALES CAPTURED ON ONE INSPECTION MONTHLY OVER A PERIOD OF FOUR YEARS FROM AREAS IN PENSACOLA.

| YEARS | AREAS Anophelines | Sewage |  | Dry Dock |  | Hatton |  | Foundry |  | Spearman |  | Squatterville |  | K. Park |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  | C | Q | C | Q | C | Q | C | Q | C | Q | C | Q | C | Q |
| 1938 | March 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 6 | 0 |
|  | April 21 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 |
|  | May 12 | 0 | 1 | 0 | 0 | 6 | 0 | 3 | 0 | 1 | 0 | 13 | 0 | 7 | 0 |
|  | June 23 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 1 | 10 | 0 | 2 | 0 |
|  | July 27 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 11 | 3 |
|  | August 25 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 51 | 19 |
|  | September 30 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 15 | 4 | 1 | 1 |
|  | October 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 |
| 1939 | March 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
|  | April 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 |
|  | May 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 |
|  | June 22 | 0 | 0 | 3 | 0 | 7 | 0 | 1 | 0 | 0 | 0 | 10 | 0 | 7 | 0 |
|  | July 22 | 0 | 1 | 2 | 0 | 7 | 3 | 0 | 0 | 0 | 0 | 58 | 1 | 112 | 39 |
|  | August 24 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 10 | 1 |
|  | September 14 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 22 | 8 | 12 | 0 | 15 | 19 |
|  | October 12 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 3 | 6 | 1 | 4 | 1 |
| 1940 | March 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
|  | April 1-30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|  | May 31 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 4 | 0 | 3 | 0 | 17 | 1 |
|  | June 27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 3 | 0 |
|  | July 25 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4 | 1 | 11 | 0 | 92 | 37 |
|  | August 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 2 | 12 | 2 | 150 | 92 |
|  | September 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 1 | 42 | 18 |
|  | October 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 |
| 1941 | March 1-31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|  | April 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 |
|  | May 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 0 |
|  | June* | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
|  | July 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 1 | 12 | 2 |
|  | August 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 13 | 3 |
|  | September* | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
|  | October 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*No catches made during the months of June and September.

## MAP 1. SHOWING DRAINAGE LINE, CONTOURS AND SHADED FILL WORK IN SQUATTERVILLE AREA



**Shaded area is filled 0" to 30". Approximately 30 percent of all fill areas complete with sub-drainage laid. 24" line 90 percent complete.**

CONTROL OPERATIONS

*Drainage* — As heretofore, control operations are being effected by the use of permanent concrete-lined drains and fill in the city of Pensacola and by a mosquito proofing program in the county.

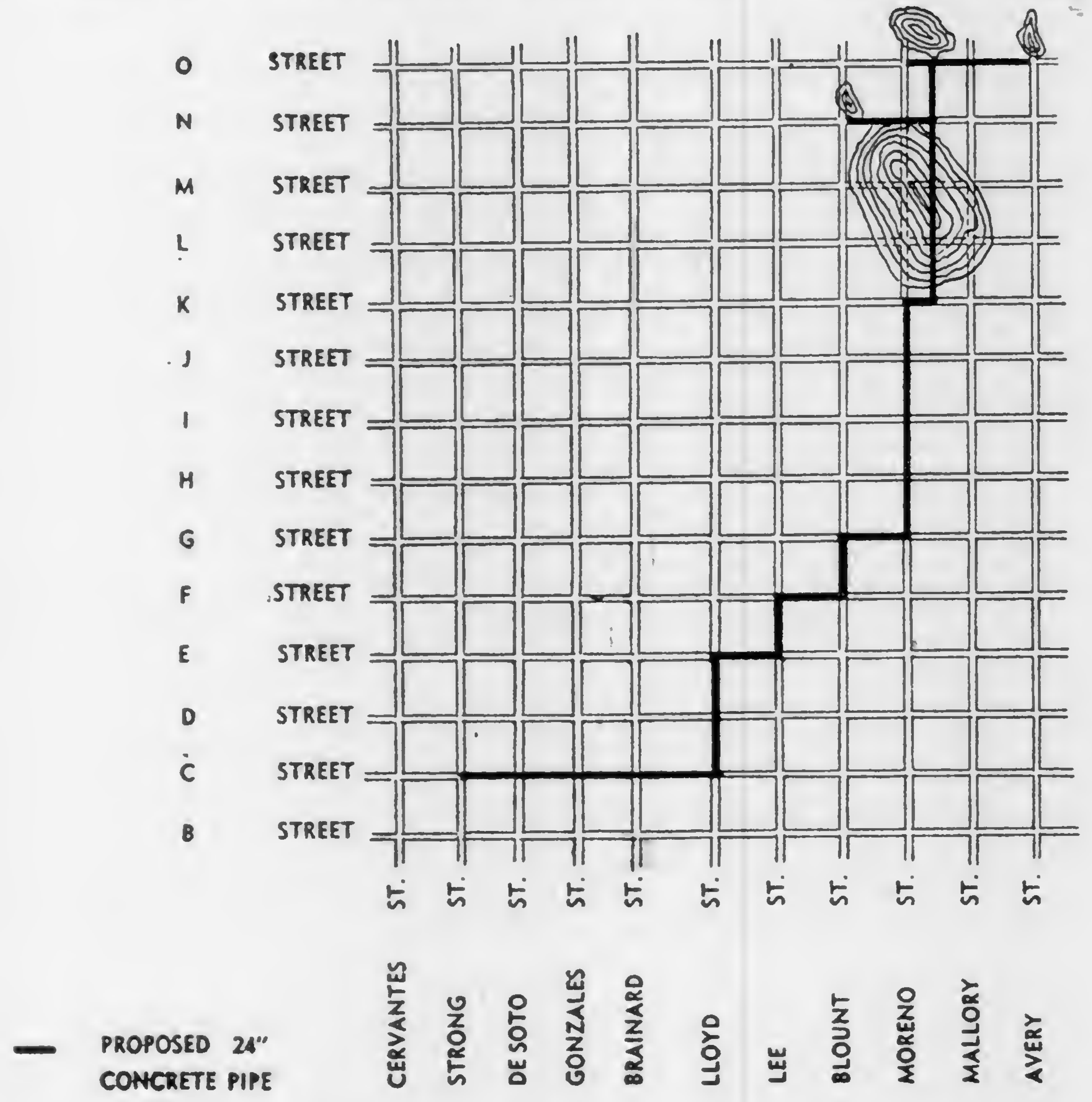
As stated in the report for 1940, page 7, two main areas, Kupfrian Park and Squatterville, remained to be drained before the completion of the general drainage program in Pensacola was terminated.

The drainage of the Squatterville area was begun the 1st of March of this year and at the end of the year was approximately 90% completed. In this area, it is difficult to make an exact evaluation of the percentage of work accomplished and that remaining to be accomplished to eliminate it as a breeding area, as the quality of the soil to be drained is peculiar to this one district.

Experimental wells were placed in this area and readings made for over a year before drainage operations were begun. The readings of the water levels in these wells before, during, and after rains indicated that the soil was of an impervious nature.

In executing the drainage work of this department, it has always been a main principle to establish the main and surely necessary central drainage system first and then, after evaluating the effectivity of this system, as judged by experimental wells, to plan the remaining installation in accordance with the actual and demonstrated needs to maintain the area in a non-breeding condition. Studies have indicated that the soil in Squatterville is not adequately described by the commonly accepted terminology "impervious soil". The soil is almost comparable to concrete in its capacity to prevent water seeping through to drainage lines. For this reason, it has been necessary to plan for grading of the fill for the surface run-off, installation of sub-soil lateral drainage lines and possibly for an interceptor line located in accordance with the interpretation of well readings on the slope which leads down to the accumulation of standing water below.

**MAP 2. KUPFRIAN PARK AREA (PROPOSED)**



**At Strong and "C" Streets, the system discharges into a City storm sewer system. At approximately "E" and Moreno Streets a gate will be installed to hold the water during storm conditions in the natural reservoir located there.**

It is estimated that there is sufficient balance left in the present W. P. A. project, which started to function in February, 1941, to terminate the major portion of work still left to be performed in Squatterville. (See Map 1).

The area of Kupfrian Park, which is the only large district remaining to be drained, has been studied completely from a topographical standpoint and complete plans made for the permanent elimination of this region from the standpoint of mosquito breeding. (See Map 2).

Once Squatterville is complete, the drainage program in Kupfrian Park will be opened. A large proportion of concrete products necessary for installation in this area have already been manufactured and are being manufactured continuously, so that no delay will be occasioned when work is ready to begin. It has not been thoroughly determined as yet whether this work will be accomplished through a W. P. A. labor project sponsored by the City of Pensacola, with the local Malaria Department supplying all materials, or whether a special and new project will be entered into with the W. P. A. and sponsored by the State Board of Health.

An interesting feature of the proposed drainage plan for Kupfrian Park is the installation of a dam and a gate at a spot which can serve as a natural reservoir. This device has been made necessary because a storm sewer already installed is being utilized as a discharge point for the drainage line from this area. As the additional volume of water from this new water shed would overtax the existing storm sewer during periods of rain, it has been arranged that this extra volume of water will be held back in the reservoir during these periods and the gate opened only when the storm sewer can accommodate the additional volume. The gate will be operated by the maintenance man.

*Fill Work*—The district known as the Peterson Tract, which was reported as having a drainage system installed, still needed some fill and grading to remove storm waters. A large portion of this fill had been accomplished previously by the United States Department of Rivers and Harbors dredge which, at our request, had pumped their dredgings into the area. As this had not been sufficient to eliminate completely the area as a mosquito-breeding locality, it was arranged that street sweepings hauled by the Street Cleaning Department of Pensacola be accumulated here over a period of months. Spreading of this accumulated earth by W. P. A. labor converted this area into one which no longer bred mosquitoes. (See Map 3).

Due to the impervious quality of the soil in the locality of Squatterville, a certain amount of fill and grading was necessary. This was accomplished by removing sand by wheel barrows from the slope of the nearby slope and moving it to the low-lying spots. (See Map 1).

During the year, the following permanent works were effected in Pensacola:

Squatterville Area:

| | | | |
|---|---|---|---|
| Standard and heavy duty 24" pipe laid | 2,140 | linear | feet |
| 4-inch sub-soil tile installed | 722 | " | " |
| Panama invert line | 257½ | " | " |
| 6-inch sub-soil line | 649 | " | " |
| Corrugated metal culvert | 45 | " | " |

Fill Work:

| | | | |
|---|---|---|---|
| Peterson Area | 4,616 | cubic | yards |
| Squatterville Area | 2,222 | " | " |

Concrete Plant:

Pipe made during the year:

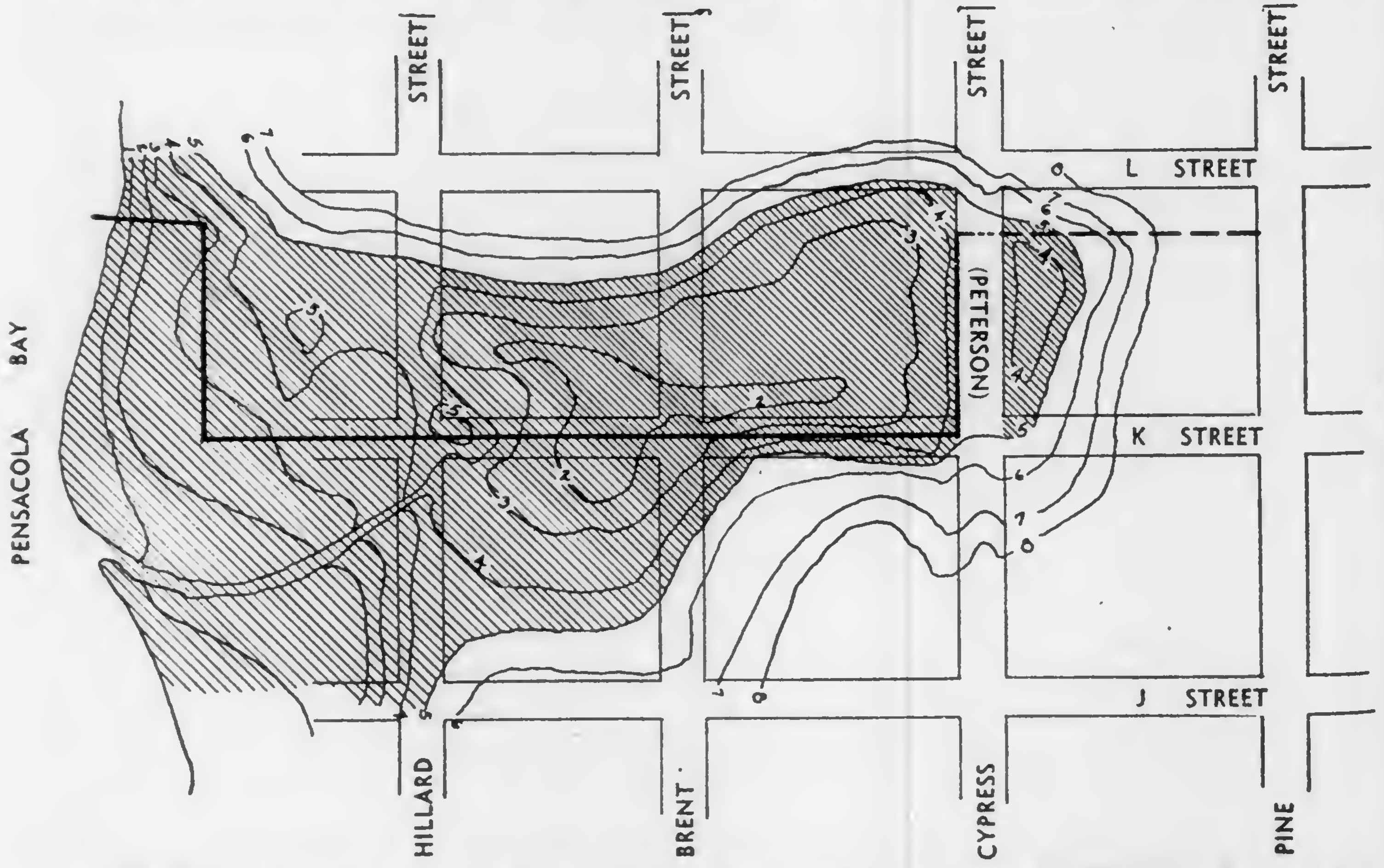
| | | |
|---|---|---|
| 24" pipe | 9,875 | linear feet |

Inventory of concrete plant as of December 31, 1941:

| | Units | Linear Feet |
|---|---|---|
| 24" standard pipe | 550 | 1325 |
| 24" heavy duty | 35 | 87½ |
| 18" standard pipe | 448 | 1344 |
| Panama inverts | 238 | 714 |
| 6" sub-soil | 1800 | 1800 |
| 4" sub-soil | 3022 | 3022 |
| Sidewalls | 255 | 637½ |

## MAP 3. PETERSON STREET AREA

**Drainage was completed in 1940; final and indicated fill work was completed in 1941. Map shows complete drainage line and shaded areas, representing fill to the five-foot contour.**



**All drainage structure complete ———— Full circle pipe.**
**Fill areas 85 per cent complete — — — — Paved invert.**

*Military Bases*—Permanent control work was continued at the Naval Air Station in Pensacola and new projects were opened at Fort Barrancas and Chevalier Field, also in Pensacola. The Escambia County Malaria Department was invited to assist in supervision and in giving counsel for the works to be effected in these two localities.

The local director of the department, Mr. Barnawell, performed preliminary mosquito surveys preparatory to establishing mosquito control projects at Tyndall Field, Panama City; Eglin Field, Valparaiso; and at Fort Barrancas and the Naval Air Station in Pensacola.

Special entomological studies were conducted by Dr. Elmendorf at Eglin Field and Panama City. (See reports on pages 76 and 80.)

Fort Barrancas Redoubt Area:

Malaria control ditches lined with concrete products:

| | | |
|---|---|---|
| 24" concrete pipe laid | 66 | feet |
| Inverts, ½ of 24, laid | 473 | " |
| Inverts laid, Panama | 554 | " |
| Inverts, 1/3 of 18", laid | 428 | " |
| 6" sub-soil | 491 | " |
| Total feet, concrete lining | 2012 | feet |

Naval Air Station, Chevalier Field:

| | | |
|---|---|---|
| Flat slab paving | 900 | feet |

Concrete products manufactured at Fort Barrancas under supervision of local Director:

| | | | |
|---|---|---|---|
| 24" standard pipe | 1861 | linear | feet |
| 18" standard pipe | 606 | " | " |
| 6" sub-soil pipe | 2045 | " | " |
| 1/3 of 18" inverts | 4347 | " | " |
| 1/3 of 24" inverts | 9 | " | " |
| Sidewalls | 2934 | | |
| Total feet, concrete lining | 11802 | linear | feet |

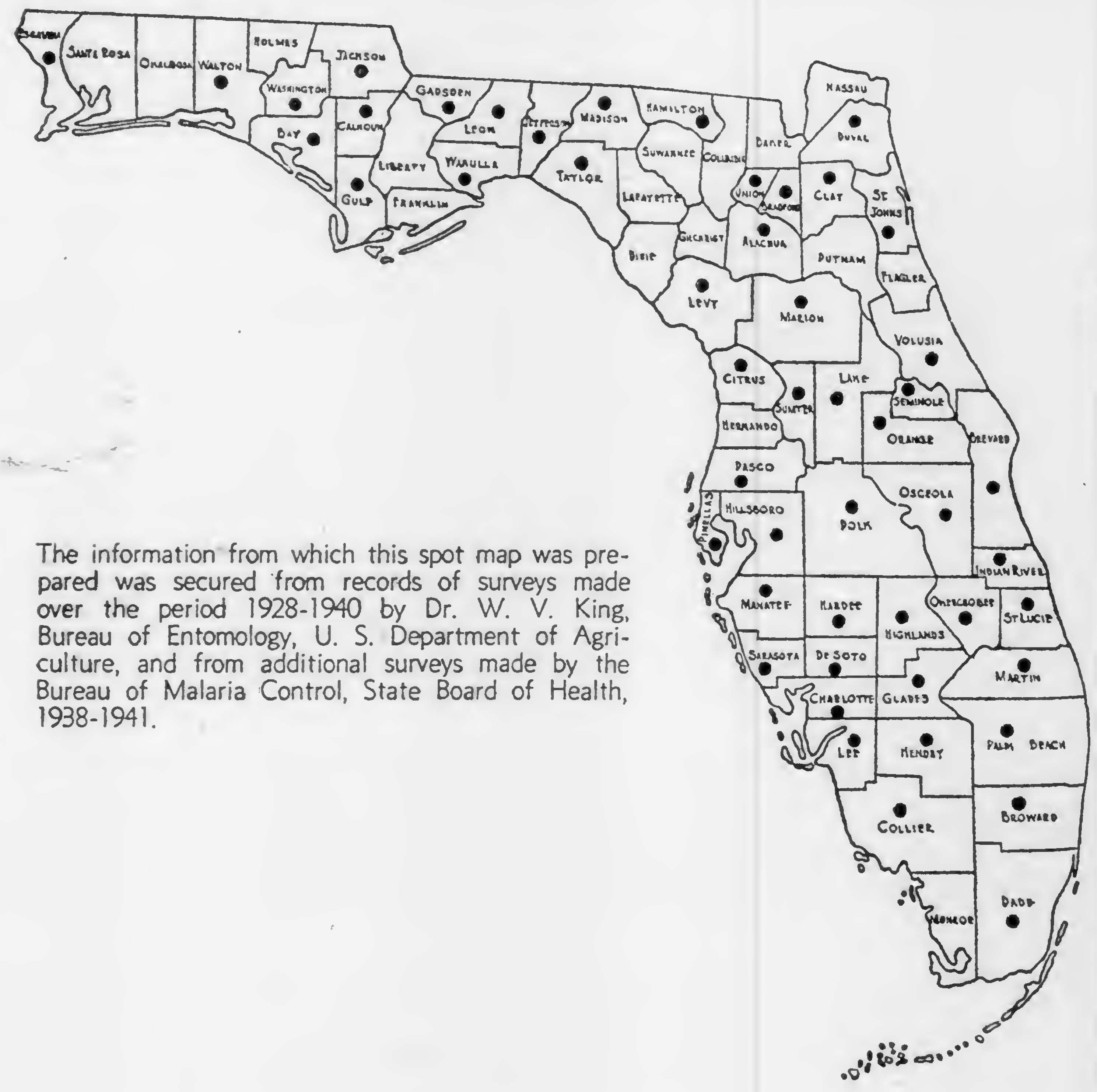
It is to be noted with interest that the work of concrete-lined ditches originally started several years ago at Fort Barrancas under the direct supervision of the Escambia County Malaria Department is being continued by both Army and Navy, not only in the Pensacola district, but in the other areas throughout Florida.

*Mosquito proofing of houses in the county*—Subsequent to the original studies made in Pensacola and Escambia County in 1937, it was determined that the economic situation of Pensacola warranted drainage and fill as a method of malaria control. This program was, therefore, adopted to the exclusion of mosquito proofing. It was further decided that larviciding would be used only as an emergency measure.

With reference to control work in the county, it was decided, if and when drainage was economically sound, this would be practiced, but that otherwise mosquito proofing would be relied upon as the chosen method of control, with larviciding if emergency conditions should demand. Though all localities were studied with the idea in view of the possibility of drainage, no area was found where drainage could be considered from the economic standpoint and where such a project could serve as a comprehensive control measure in place of screening. Accordingly, the means of control adopted for the county originally was and has continued to be one of mosquito proofing.

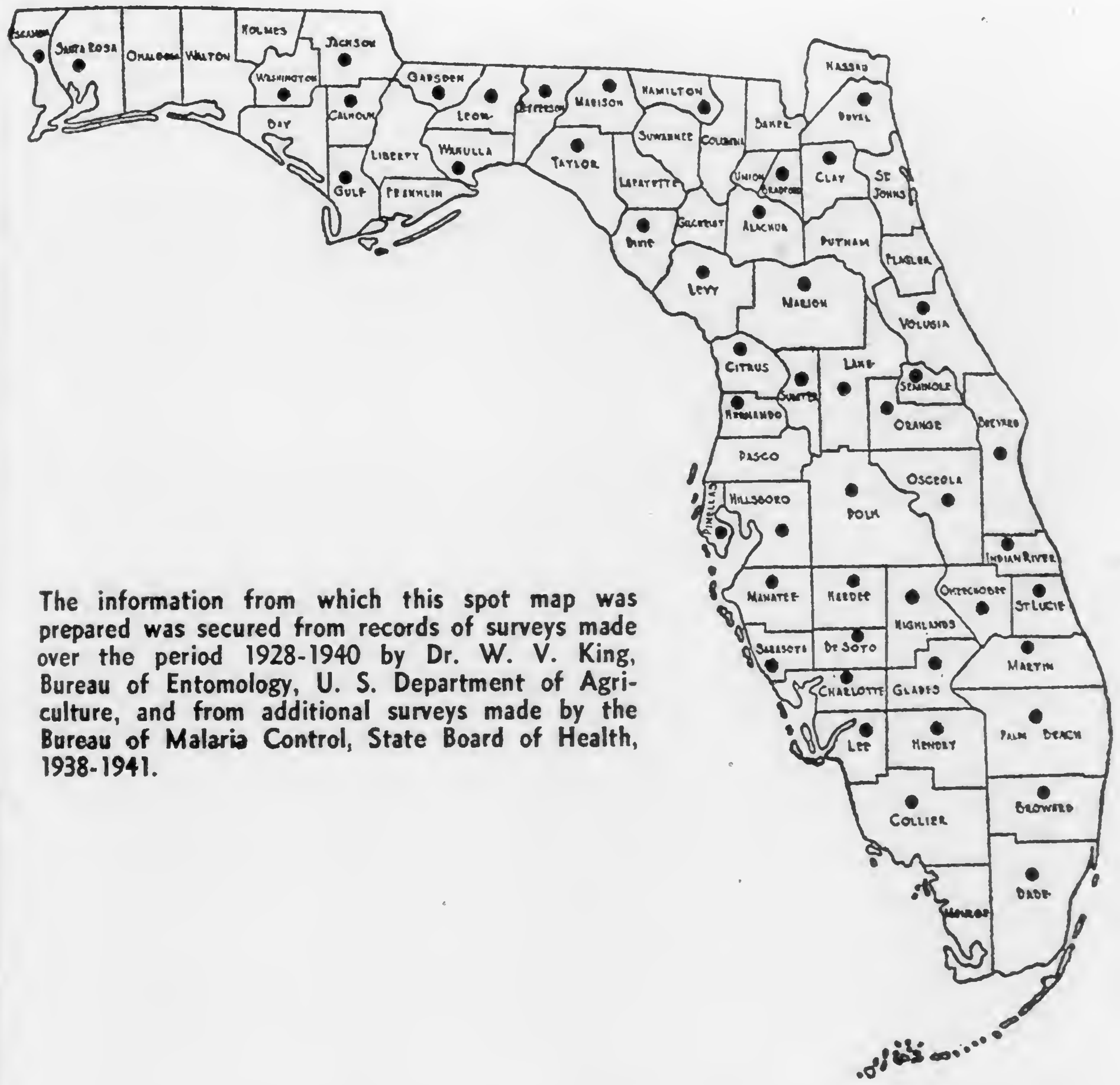
There is one exception to this statement and that is the region of Warrington. Warrington, geographically, is a suburb of Pensacola, but, politically, it is entirely county. A drainage program could be executed with good effect in this general region. That it has not been accomplished is due to lack of finances from county sources. If finances, in addition to those necessary for the screening program, could be made available by the county, a drainage program should be projected for this locality.

## MAP. 4. COUNTIES IN FLORIDA WHERE *ANOPHELES CRUCIANS* ADULTS AND LARVAE HAVE BEEN COLLECTED



The information from which this spot map was prepared was secured from records of surveys made over the period 1928-1940 by Dr. W. V. King, Bureau of Entomology, U. S. Department of Agriculture, and from additional surveys made by the Bureau of Malaria Control, State Board of Health, 1938-1941.

## MAP 5. COUNTIES IN FLORIDA WHERE *ANOPHELES QUADRIMACULATUS* ADULTS AND LARVAE HAVE BEEN COLLECTED.

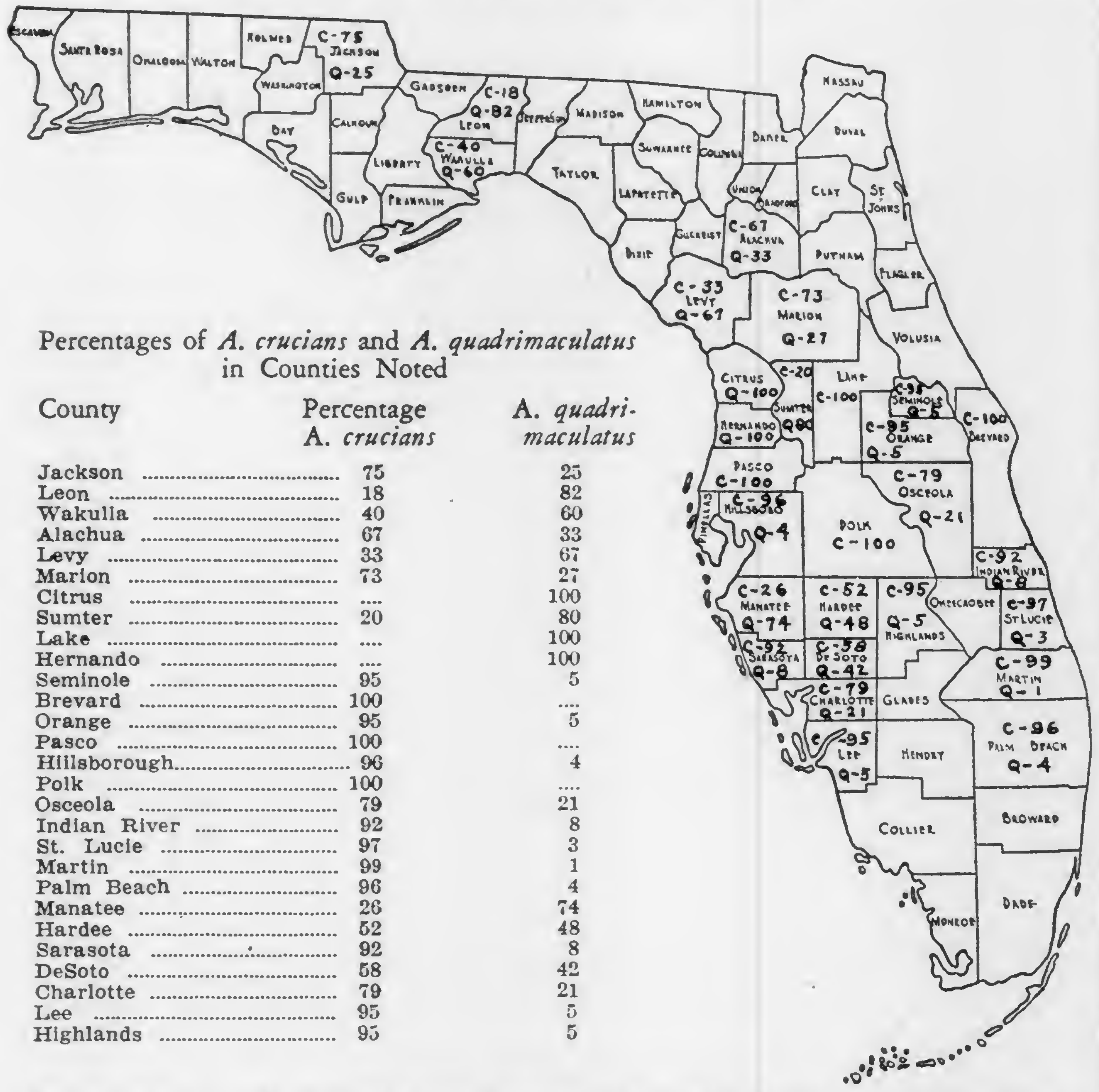


**The information from which this spot map was prepared was secured from records of surveys made over the period 1928-1940 by Dr. W. V. King, Bureau of Entomology, U. S. Department of Agriculture, and from additional surveys made by the Bureau of Malaria Control, State Board of Health, 1938-1941.**

The mosquito proofing program was continued in accordance with the plans of previous years. The department made contact with house-owners, convinced them of the advisability of mosquito proofing their houses, made measurements and listed materials necessary on special forms. The owners purchased materials and delivered them to the Malaria Department's workshop. Here the screen doors were made according to measurement. When sufficient had been completed from any one district to warrant a trip, they were then hauled by "pick-up" truck or trailer to the houses in question and applied by the carpenters of the Malaria Department. While engaged in the work of application of products, the personnel make contacts in the same region in attempts to secure more applicants for mosquito proofing of their dwellings.

As the funds advanced by the county for the fiscal year of October 1, 1940, to September 30, 1941, were limited to $2,000, there was only a small balance left for the screening project after paying $1,250 to the State Board of Health for the county's appropriation of the general $6,000

## MAP 6. ANOPHELES LARVAE SURVEY MADE BY STATE BOARD OF HEALTH AND ROCKEFELLER FOUNDATION COUNTIES OF FLORIDA — 1932



Percentages of *A. crucians* and *A. quadrimaculatus* in Counties Noted

| County | Percentage A. *crucians* | A. *quadrimaculatus* |
|---|---|---|
| Jackson | 75 | 25 |
| Leon | 18 | 82 |
| Wakulla | 40 | 60 |
| Alachua | 67 | 33 |
| Levy | 33 | 67 |
| Marion | 73 | 27 |
| Citrus | .... | 100 |
| Sumter | 20 | 80 |
| Lake | .... | 100 |
| Hernando | .... | 100 |
| Seminole | 95 | 5 |
| Brevard | 100 | .... |
| Orange | 95 | 5 |
| Pasco | 100 | .... |
| Hillsborough | 96 | 4 |
| Polk | 100 | .... |
| Osceola | 79 | 21 |
| Indian River | 92 | 8 |
| St. Lucie | 97 | 3 |
| Martin | 99 | 1 |
| Palm Beach | 96 | 4 |
| Manatee | 26 | 74 |
| Hardee | 52 | 48 |
| Sarasota | 92 | 8 |
| DeSoto | 58 | 42 |
| Charlotte | 79 | 21 |
| Lee | 95 | 5 |
| Highlands | 95 | 5 |

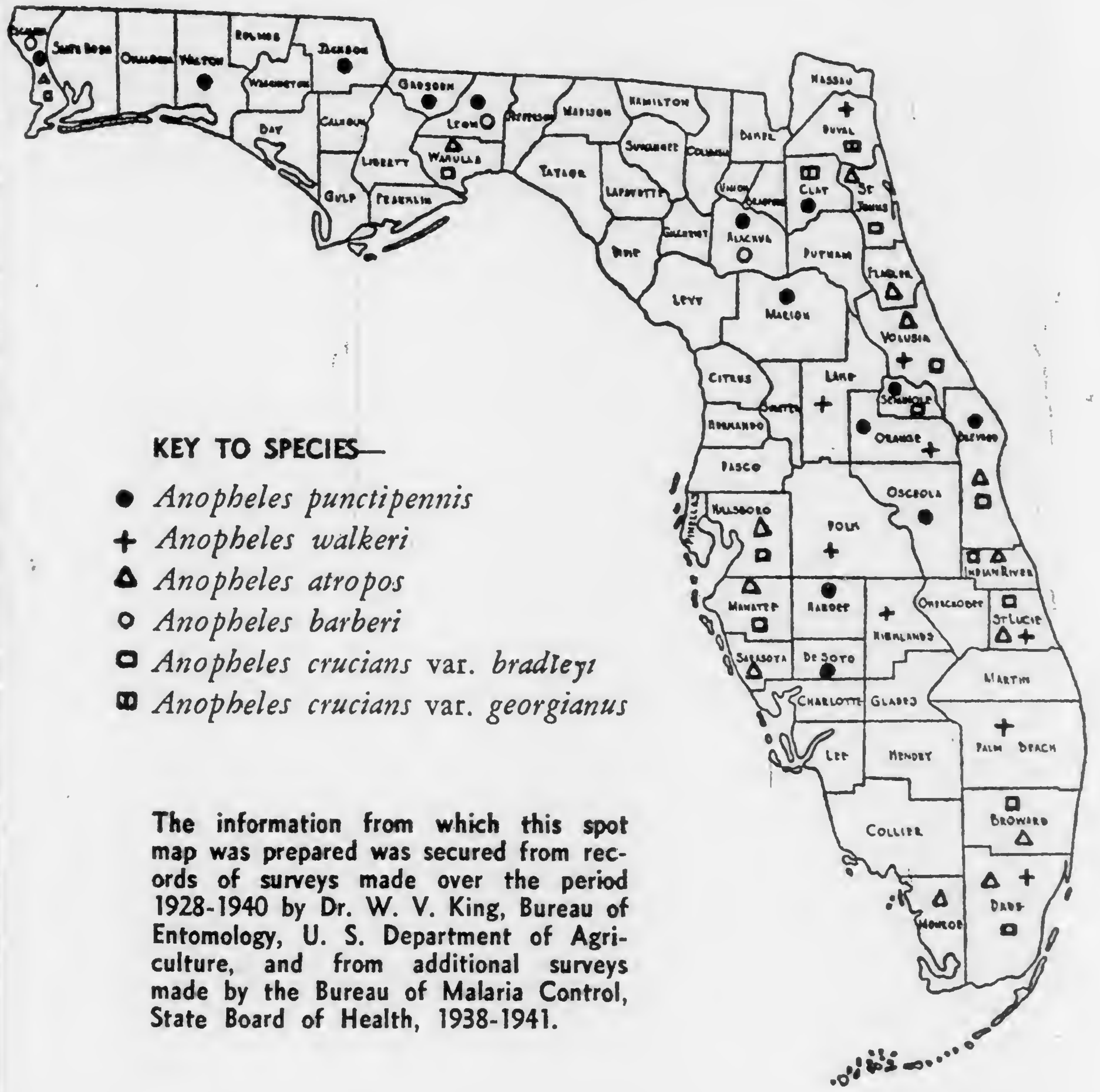
**Percentage of anopheles larvae identified from collections at various localaties.**

budget to cover expenses of personnel, etc., of the Escambia County Malaria Department.

In view of the limited finances, it was possible to open only one center for screening in the county and, as work still remained to be performed in Century and because of its proximity to the office of the Farm Security Administration, Century was chosen for the center for screening activities this year.

The Farm Security Administration being well satisfied with the results of the mosquito proofing program performed as a cooperative project last year between their administration and the Malaria Department, entered

## MAP 7. COUNTIES IN FLORIDA WHERE THE VARIOUS ANOPHELINE ADULTS AND LARVAE HAVE BEEN COLLECTED



**KEY TO SPECIES—**

- ● *Anopheles punctipennis*
- + *Anopheles walkeri*
- ▲ *Anopheles atropos*
- ○ *Anopheles barberi*
- ▢ *Anopheles crucians* var. *bradleyi*
- ▣ *Anopheles crucians* var. *georgianus*

**The information from which this spot map was prepared was secured from records of surveys made over the period 1928-1940 by Dr. W. V. King, Bureau of Entomology, U. S. Department of Agriculture, and from additional surveys made by the Bureau of Malaria Control, State Board of Health, 1938-1941.**

upon the same arrangement this year. The Administration agreed to supply all materials for mosquito proofing the houses of all their loan clients, residing in Escambia County, if the Malaria Department would furnish the labor and supervise the work of manufacture, installation of products and approving of accounts of materials purchased.

With the change in the Escambia County Malaria Department to a personnel of one person, the Sanitary Engineer, and with two-thirds of the salary and travel corresponding to this position paid by the Rockefeller Foundation, the contribution of both City and County to the overhead expense of the department was reduced from $1,250 each year to $500 yearly for the present year. Accordingly, for the fiscal year of 1941-1942, $1,500 is available for the mosquito proofing program in the County or double the amount of the year 1940-1941. At the present time, the program is being continued throughout the entire year. Contacts are being made throughout the winter and screening is being performed for such owners as desire mosquito proofing. Previously, the work was limited largely to the summer months and early fall. This was believed indicated, as the demand for screening had not then reached the proportions existing at present and there were not enough screened houses to warrant the part-time services of a carpenter for maintenance during periods of the year when new screening jobs were not requested.

REPORT ON MOSQUITO PROOFING PROGRAM FOR THE YEAR:

| | | |
|---|---|---|
| Houses screened during the year: | 101 | |
| Number of doors made and applied in above houses | 299 | |
| Number of windows screened by tacking on wire | 647 | |
| Number of windows screened with frames | 143 | |
| Total cost for labor on mosquito proofing project | $1,361.60 | |
| Rent of truck for transportation of men and products | 245.24 | |
| Gas and oil | 119.63 | |
| Miscellaneous | 10.33 | |
| Total | $1,736.80 | |
| Cost of labor per house | $13.48 | plus |
| Cost of transportation per house | 2.42 | " |
| Cost of gas and oil per house | 1.18 | " |
| Miscellaneous cost per house | .10 | " |
| Total cost per house (Average) | $17.19 | |

The mosquito proofing has now reached a stage where it will be able to progress to the extent that finances for its prosecution are made available.

The preliminary period of education and demonstration of products has produced a demand which is at present limited merely by available finances.

Every effort is being made to increase the contribution by the county for the next fiscal year, October 1, 1942, to September 30, 1943. A minimum of $3,000 should be made available for this program and preferably, to cover the county adequately, this sum should be raised eventually to $5,000.

SPECIAL EDUCATIONAL ACTIVITIES

Moving pictures of the control work in Escambia County were shown at a County School and a fifteen-minute discussion of malaria control by screening was given over the local radio station. Lectures and addresses were given to clubs and Red Cross groups.

The routine educational program was conducted, as heretofore, through personal interviews with house-owners during the process of convincing them of the necessity of supplying materials for mosquito proofing of houses.

TRAINING BASE

The department functioned as an observation post and training base during the course of the year, though, due to the transfer of the department to Jacksonville, it was not used to as great an extent as in preceding years. During the year, twenty-three visitors and trainees were shown the work of the department.

SPECIAL CONCLUSIONS FROM YEAR'S ACTIVITIES

Mosquito proofing has been made a practical financial proposition by offering all labor for manufacture, listing materials necessary and supervising work of manufacture and installation with the owner purchasing the materials.

Experimental wells are an essential for correct planning and subsequent evaluation of a drainage program.

The relationship of blood positive findings to splenic enlargement as well as the yearly variances of parasite positive cases needs further study and elucidation.

# REPORT OF AN ENTOMOLOGICAL SURVEY CONDUCTED AT NAVAL AIR STATION JACKSONVILLE, FLORIDA, 1941

NOTE: It is unfortunate, in entomological surveys, that a sample taken over a limited period of time does not necessarily represent the complete mosquito fauna of the area being investigated. To be conclusive, areas should be investigated at opportune intervals over a period of at least a year. A short period, corresponding to the time of taking a sample may present special climatic circumstances such as extreme degrees of wind, rain, heat, cold, drought, presence of temporary control measures, etc., which can materially influence the results of the survey and, though furnishing actual facts on the negative or positive side for the interval of time involved, would not necessarily indicate conditions maintaining throughout the year during the entire mosquito breeding season.

A mosquito survey was made by the Bureau of Malaria Control of the Florida State Board of Health at the Naval Air Station, Jacksonville, Florida, covering a period from August 20 to September 4.

The survey was conducted utilizing the procedures of larval inspection of water areas and adult captures, the latter effected through the means of mosquito light traps stationed at strategic positions and allowed to function throughout the night.

A general topographical survey was first made of the Naval Air Station grounds to ascertain areas of collected waters. Subsequently, an inspection of these waters was made to determine the presence or absence of mosquito larvae. The larval inspection was limited to determining the presence or absence of anopheline larvae, whereas in the adult captures all species captured were identified.

Table 17 indicates the results of inspection of all areas where standing water was found, presumably propitious for breeding. The results of the inspection of these areas for anopheline breeding is recorded in that table. It is of utility to note that *Anopheles quadrimaculatus* larvae were found in the large areas on the extenuation of the road leading past the Officers' Quarters where a roadway is being made by filling. The fact of finding A. *quadrimaculatus* in this district, though few in number, can not be ignored, but this finding is of greater import as it demonstrates that A. *quadrimaculatus* can breed readily at the station and it is only by the efficient and detailed work of larviciding that this breeding is being curtailed throughout the station. A cessation of larviciding could result in greatly increased density.

During the course of the survey, practically no water areas were visited where evidences of recent oiling were not apparent. Larviciding is naturally a temporary measure and must be repeated at ten-day intervals throughout the entire breeding season and for as many years as control work may be desired. Further, larviciding is only as efficient as the supervision to insure that all water areas are adequately covered and at suitable intervals by the larviciding squads. It can be stated that with no reservation the larvicidal work at the Naval Air Station, as evidenced by results during the period of this survey, was most efficacious.

Table 18, showing adult captures by the light trap at various stations, corroborates the findings of the larval collections; namely, that there were relatively few mosquitoes "on the wing" and very few anophelines. In both instances where A. *quadrimaculatus* were found, Junior Bachelor Officers' Quarters and Senior Bachelor Officers' Quarters, breeding areas had been found contiguous to these localities which were actually breeding anophelines.

It is known and accepted that A. *quadrimaculatus* is an efficient malaria carrier in the southeastern portion of the United States. The role of A. *crucians* has not been as satisfactorily defined to date. It is generally accepted that it is not a formidable carrier of the malaria plasmodium, but its presence cannot be entirely neglected when it occurs in considerable density.

Of the mosquitoes captured in the light traps, other than anophelines, *Culex (Melanoconion* sp.) was the most consistently found and in the greatest density. These mosquitoes breed under conditions somewhat similar to those found in anopheline breeding areas.

During the period covered by the survey, no salt marsh breeding mosquitoes were found. However, as the writer has observed these in the near vicinity, their presence would be expected at the Naval Air Station at certain seasons.

TABLE 17.—ANOPHELINE LARVAE COLLECTED FROM NAVAL AIR STATION, JACKSONVILLE, FLORIDA

| DATE 1941 | STATION | LARVAE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Instars | | | | Species | | | | No. Str. |
| | | 1 | 2 | 3 | 4 | C | Q | P | Misc. | |
| August 20 | 1 | ...... | 1 | 1 | ...... | ...... | 2 | ...... | ...... | ...... |
| August 20 | 2 | ...... | ...... | ...... | 1 | 1 | ...... | ...... | ...... | ...... |
| August 20 | 3 | 1 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| August 20 | 4 | 5 | 4 | 5 | 9 | 3 | 11 | ...... | ...... | 8 |
| August 20 | 5 | ...... | 12 | ...... | ...... | ...... | ...... | ...... | ...... | ...... |

Conclusions:

1. There was very slight evidence of any mosquito breeding within the grounds of the Naval Air Station.
2. Light trap captures revealed the presence of a few anophelines and a very low density of all mosquitoes found.
3. Evidence was apparent at the time that oiling as a larvicide measure was being performed efficiently.

Recommendations, General:

1. Plans for permanent control of mosquito breeding areas should be made if the Naval Air Station is to be a permanent or semi-permanent institution.
2. These plans should take the form of a drainage system lined with concrete products and in certain instances associated fill work.
3. Mosquito erradication drainage should be associated, in so far as possible, with other drainage projects being conducted for other practical ends.
4. Drainage ditches for mosquito erradication should always be installed at the lowest effective elevations, to be determined by the available point of discharge and the necessary gradients to be used. Such planning will permit in the future of the drainage of additional areas if and when they may be subsequently found to need drainage.
5. Malaria drainage is designed especially for the elimination of residual waters and for this reason should have narrow rounded or "V" shaped bottoms lined with concrete products to facilitate the easy removal of water and to prevent clogging with vegetation.

TABLE 18.—Light Trap Record for Naval Air Station, Jacksonville, Florida.

| STATION | Anopheles | | | | Culex | | | | | | Uranotaehia | | | | Ardes | | Psorophora | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Crucians | | Quadrimaculatus | | Salinarius | | Quinquefasciatus | | Melanoconion (sp.) | | Sapphirina | | Lowii | | Triseriatus | | Columbiae | |
| | M | F | M | F | M | F | M | F | M | F | M | F | M | F | M | F | M | F |
| August 20, 1941 | | | | | | | | | | | | | | | | | | |
| 1. | 1 | 3 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 3 | ...... | 2 | ...... | ...... | ...... | ...... | ...... | ...... |
| 2. | ...... | 1 | ...... | 3 | ...... | 1 | ...... | ...... | ...... | 2 | ...... | 2 | ...... | ...... | ...... | ...... | ...... | ...... |
| August 21, 1941 | | | | | | | | | | | | | | | | | | |
| 3. | 1 | 2 | ...... | 1 | ...... | ...... | ...... | 1 | ...... | 4 | ...... | 2 | ...... | ...... | ...... | 1 | ...... | ...... |
| 4. | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 9 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| August 27, 1941 | | | | | | | | | | | | | | | | | | |
| 5. | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 3 | 10 | ...... | 1 | ...... | 1 | ...... | ...... | ...... | ...... |
| 6. | | | | | | | | | | | | | | | | | | |
| August 28, 1941 | | | | | | | | | | | | | | | | | | |
| 7. | ...... | 1 | ...... | ...... | ...... | ...... | ...... | 1 | ...... | 14 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| 8. | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 3 | 4 | ...... | 2 | ...... | ...... | ...... | ...... | ...... | 2 |
| September 3, 1941 | | | | | | | | | | | | | | | | | | |
| 9. | ...... | ...... | ...... | ...... | ...... | ...... | 1 | 1 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 5 |
| 10. | ...... | ...... | ...... | ...... | ...... | ...... | 13 | 4 | 1 | 1 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... |
| September 4, 1941 | | | | | | | | | | | | | | | | | | |
| 11. | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 3 | ...... | 3 | ...... | ...... | ...... | ...... | ...... | ...... |
| 12. | ...... | ...... | ...... | ...... | ...... | ...... | 1 | 2 | ...... | 4 | ...... | ...... | ...... | 1 | ...... | ...... | ...... | ...... |

# REPORT OF AN ENTOMOLOGICAL SURVEY
# CONDUCTED AT CAMP BLANDING
# SEPTEMBER AND OCTOBER, 1941

## Also Associated Clinical Studies Made in Surrounding Territory

NOTE: It is unfortunate in entomological surveys that a sample taken over a limited peried of time does not necessarily represent the complete and possible mosquito fauna of the area being investigated. To be conclusive, surveys should be conducted at opportune intervals over a period of at least a year. A short period, corresponding to the time of taking a sample, may represent special climate circumstances such as extreme degrees of wind, rain, heat, cold, drought, or presence of temporary control measures, etc., which can materially influence the results of the survey and, though furnishing actual facts on the positive or negative side for the interval of time involved, would not necessarily indicate conditions maintaining throughout the year and during the entire mosquito breeding season.

A study of the mosquito fauna was made by the Bureau of Malaria Control of the Florida State Board of Health, cooperating with the Sanitary Corps at Camp Blanding, at intervals during the months of September and October. A clinical survey was made in schools of the neighboring territory during the month of November.

The study was performed by utilizing the procedures of larval inspection of water areas and by adult captures, the latter effected through the means of mosquito light traps stationed at strategic positions and allowed to function throughout the entire night.

Arrangements for the study were made by Dr. John E. Elmendorf, Jr., Director of the Bureau of Malaria Control, and Colonel L. R. Poust with the approval of Colonel L. A. Kunzig. Mr. John A. Mulrennan, Entomologist of the Bureau of Malaria Control, assisted by Dr. R. J. Patterson, cooperated with Lt. J. E. Webb in performing the actual works of investigation.

### INSPECTION FOR LARVAE

On September 17 and 18 the water areas present at Camp Blanding were visited and inspected for the presence of mosquito larvae.

In the area designated at D-2 on the map, a survey area with numerous pot holes, two larvae were found and identified as A. *crucians* and two identified as A. *quadrimaculatus.*

In Area AB-3, five first instar and two second instar anopheline larvae were collected.

In Area AB-2, one first instar anopheline larva was collected.

All of these areas, as well as the others visited, were being oiled by a W. P. A. crew who had performed their work effectively. The larvae that were found were collected in those small areas where the oil had not completely penetrated.

TABLE 19. — MOSQUITO LIGHT TRAP RECORD, CAMP BLANDING, 1941.

| DATE | AREA | LOCATION | ANOPHELES |  |  |  | AEDES |  |  |  | CULEX |  |  |  |  |  |  |  | URANOTAENIA |  |  |  | PSOROPHORA |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  | Crucians |  | Quadrimaculatus |  | Infirmatus |  | Mitchellae |  | Pilosus |  | Quinquefasciatus |  | Salinarius |  | Nigripalpus |  | Sapphirina |  | Lowii |  | Columbiae |  |
|  |  |  | M | F | M | F | M | F | M | F | M | F | M | F | M | F | M | F | M | F | M | F | M | F |
| Sept. 17 | AB-1 | Trap No. 1 |  |  |  |  |  |  |  |  | 6 | 28 |  |  |  |  |  |  | 3 | 4 |  |  |  |  |
| Sept. 17 | AB-1 | Trap No. 2 |  |  |  |  |  |  |  |  | 21 | 78 |  |  |  |  |  |  | 7 | 10 |  |  |  |  |
| Sept. 19 | AB-1 | South |  |  |  |  |  |  |  |  | 14 | 143 |  |  |  |  |  |  | 1 | 5 |  |  |  |  |
| Sept. 29 | AB-2 | South end of Area |  | 3 |  |  |  |  |  |  | 43 | 253 |  |  |  |  |  |  | 2 | 7 |  |  |  | 2 |
| Sept. 9 | BC-1 | South |  |  |  |  |  |  |  |  | 3 | 9 |  |  |  | 1 |  | 1 | 2 | 7 |  |  |  | 2 |
| Sept. 20 | BC-1 | North |  |  |  |  |  |  |  |  | 2 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |
| Sept. 22 | BC-2 | Reception Center North |  | 1 |  |  |  |  |  |  | 4 | 27 |  |  |  | 4 |  |  |  | 3 |  |  |  | 11 |
| Sept. 22 | BC-2 | Reception Center South |  | 3 |  |  | 1 | 5 |  |  | 30 | 68 |  |  |  |  |  |  |  | 5 |  | 1 | 15 | 102 |
| Sept. 23 | BC-3 | Hdq. 103rd F. A. South |  |  |  |  |  |  |  |  | 2 | 7 |  |  |  |  |  |  |  |  |  |  | 5 | 47 |
| Sept. 23 | BC-3 | 116th F. A. North |  | 1 |  |  |  |  |  |  | 4 | 32 |  |  |  |  | 1 | 2 | 10 | 27 |  |  | 1 | 9 |
| Sept. 26 | CD-1 | 155th Infantry South |  | 2 |  | 1 | 2 | 4 |  | 2 | 2203* |  |  |  |  |  | 2 | 7 | 5 | 20 |  |  |  | 12 |
| Sept. 29 | CD-2 | 129th Infantry South |  |  |  |  |  |  |  |  | 22 | 43 | 1 |  |  |  |  |  |  | 2 |  |  |  | 3 |
| Sept. 29 | CD-2 | 156th Infantry North |  |  |  |  |  |  |  |  | 14 | 53 |  |  |  |  |  | 5 | 1 | 5 |  |  | 2 | 28 |
| Sept. 30 | CD-3 | U. S. Post Office South |  |  |  |  |  |  |  |  | 4 | 17 |  |  |  |  | 1 | 5 |  |  |  |  |  | 9 |
| Sept. 30 | CD-3 | 106th Ord. Company North |  | 4 |  |  |  |  |  |  | 7 | 23 |  |  |  |  | 1 | 6 |  |  |  |  |  | 22 |
| Oct. 1 | CD-4 | 103rd Infantry North |  |  |  |  |  |  |  |  | 5 | 30 |  |  |  |  | 2 | 4 |  |  |  |  |  | 7 |
| Oct. 1 | CD-4 | 169th Infantry South |  |  |  |  |  |  |  |  | 4 | 3 | 1 |  |  |  |  |  |  | 1 |  |  |  | 2 |
| Oct. 2 | D-2 | South at Motor Pool |  |  |  |  |  |  |  |  |  | 4 | 1 |  |  |  |  | 1 |  | 1 |  |  |  | 9 |
| Oct. 2 | D-2 | North CCC Area | 7 | 17 |  |  |  |  |  |  |  | 5 |  |  |  |  | 2 | 2 |  | 1 |  |  |  | 7 |
| Oct. 3 | D-3 | South No. 2 Incinerator |  |  |  |  |  |  |  |  | 3 | 5 |  |  |  |  |  |  |  | 2 |  |  |  | 1 |
| Oct. 3 | D-3 | North Cath.-in-the-Pines |  | 6 |  |  |  |  |  |  | 1 | 7 |  |  |  |  | 2 | 14 |  | 2 |  |  |  | 17 |

NOTE: Collection from BC-4 North and South were destroyed by ants.
*Figure represents male and female specimens.

A large amount of ditching was being executed throughout the camp, and, if lined with concrete linings with special provision being made for removal of residual waters such as can be accomplished by installing a small invert in the bottom of the ditch, excellent permanent work of drainage for mosquito control may be anticipated.

Table 19 indicates the results of the adult captures which were made from September 17 to October 3. This table shows, whereas various mosquitoes were captured which could possibly constitute a nuisance element for the camp, that the number of anophelines was very low, only one A. *quadrimaculatus* in the twenty-one captures made. A. *crucians* was more plentiful. Attention should be called to the fact that, whereas A. *crucians* is not commonly considered to be an efficient vector of malaria, still it cannot be completely exonerated from being, under certain circumstances, a potential carrier. Mayne first reported the experimental infection of A. *crucians* with P. *vivax* and P. *falciparum*. Mayne and various observers have noted natural infections of A. *crucians*. On the other hand, it is known and accepted that A. *quadrimaculatus* is an efficient malaria transmitter in the southeastern portion of the United States.

## CLINICAL SURVEY

A clinical survey was conducted in the schools of Starke, Hampton, and Lawtey. Children between the ages of five and twelve years were examined for splenic enlargement with blood smears taken on all children showing such enlargement and with blood smears in addition taken from each fifth child negative to such enlargement. The examination was made by Dr. John E. Elmendorf, Jr. The survey was performed on November 19 and 20, 1941. In all, 623 children were examined and 99 found with splenic enlargement, representing 15.8%. This clinical finding corresponds to the relatively low findings evidenced in mortality rates by counties.

As compared with other counties surveyed this fall, this incidence of the presence of malaria as evidenced by splenic enlargement is low.

TABLE 20. — ANOPHELINE LARVAE COLLECTED FROM CAMP BLANDING, FLORIDA.

| DATE 1941 | LOCATION AND TYPE STATION | LARVAE |  |  |  |  |  |  |  |  | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  | Instars |  |  |  | Species |  |  |  | No. Str. |  |
|  |  | 1 | 2 | 3 | 4 | C | Q | P | Misc. |  |  |
| Sept. 17 | Area D-2 |  |  |  | 4 | 2 | 2 |  |  |  | Swampy, pot holes |
| Sept. 17 | Area AB-3 | 5 | 2 |  |  |  |  |  |  | 40 | Small pond |
| Sept. 17 | Area AB-2 | 1 |  |  |  |  |  |  |  |  | Swampy; ditches |

# REPORT OF AN ENTOMOLOGICAL SURVEY

## CONDUCTED AT C.C.C. CAMP NUMBER 4448, TAYLOR COUNTY.

At the request of Mr. John N. Cone, Taylor County Sanitary Officer, an anopheline survey was made at the Civilian Conservation Camp No. 4448, located about five miles south of Salem in Taylor County.

This camp was established in the California Creek swamp. The purpose of the camp is to build roads and to do reforestation, which work is under the Forestry Service of the U. S. Department of Agriculture. The supervision of the camp is under the direction of the U. S. Army.

The location of the camp site is on a slightly elevated strip of flatwoods land that is in the shape of a horse shoe, the back of the shoe being bounded by a road on the west side of the camp. Close to the camp a tremendous swamp exists. On the north side of the camp, the water approaches approximately to within fifty feet of the barracks used by the Forestry Service personnel. On the east side, the water is about 200 feet from the buildings and on the south side, about 100 yards from the buildings.

Adult captures were made in four representative types of buildings. (1) Administration Building (2) No. 4 Barracks, approximately 120 feet long by 20 feet wide, and housing approximately forty boys (3) Truck shed (4) Forestry Service Barracks.

In the Administration Building, one hundred yards more or less from the swamp, eight *Anopheles quadrimaculatus* females, engorged with blood, were captured.

This building is poorly mosquito proofed. There were two holes about the size of a cup in the top of the screen door on the front of the building. There was a crack under the front door about one-half inch wide. The door did not fit well and had one-fourth inch weather stripping for door stops. Under the eaves and at the juncture of the siding and roof, there were openings from one-eighth inch to one inch wide running down each side of the building.

TABLE 21. — ANOPHELINE LARVAE COLLECTED FROM TAYLOR COUNTY C. C. C. CAMP 4448, SOUTH OF SALEM.

| Date 1941 | Location and Type Station | Larvae | | | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Instars | | | | Species | | | | No. | |
| | | 1 | 2 | 3 | 4 | C | Q | P | Misc. | Str. | |
| Aug. 14 | From swamp area around the camp | 108 | 97 | 76 | 53 | 8 | 45 | | | 40 | Breeding was heavy, edge of swamp at N.W. corner of the Camp site. |

In No. 4 Barracks, a total of 573 female *Anopheles quadrimaculatus* and nine female *Anopheles crucians* were counted on the inside walls of the barracks. All of the anophelines were engorged with blood, and a good percentage were gravid.

In the truck shed, that was approximately 80 to 100 feet long by 14 feet high by about 20 feet wide, it was estimated that approximately 1,000 to 1,500 anophelines were on the walls and in the top. *A. quadrimaculatus* predominated in the shed 10 to 1.

In the personnel quarters of the U. S. Department of Agriculture Forestry Service, only one *Anopheles crucians* was captured. This building was infinitely better mosquio proofed than any of the other buildings where *Anopheles* mosquitoes were captured. There was one thing very evident, and that was that the crack around the top was practically mosquito tight, although it was not perfect. There were some small holes in the floor as well as some in the end of the building near the top, where apparently electric wires came through at one time.

It was reported that these buildings were moved from the Miami area and reconstructed. They appear to be a portable type of building.

Anopheline larvae were found breeding in all the water areas adjacent to and for a distance of about 300 yards in the swamp. Inspections into the swamp were made for approximately 300 yards. The greatest breeding was found around the edge of the swamp where the underbrush and trees had been cleared away.

The density of the larvae were sixty-seven per square meter, with 85% *Anopheles quadrimaculatus*.

TABLE 22. — ANOPHELINE LARVAE COLLECTED FROM TAYLOR COUNTY C. C. C. CAMP 4448, SOUTH OF SALEM.

| Date 1941 | Location and Type Station | ANOPHELINES | | | | | | | Time Spent |
|---|---|---|---|---|---|---|---|---|---|
| | | Crucians | | Quads | | Puncts | | Misc. Species | |
| | | M | F | M | F | M | F | | |
| Aug. 14 | Administration Building | ........ | ........ | ........ | 8 | ........ | ........ | ........ | 20 minutes |
| Aug. 14 | Truck Shed | ........ | 5 | ........ | 2000 | ........ | ........ | ........ | Estimated 35 minutes spent in counting |
| Aug. 14 | No. 4 Barracks | ........ | 9 | ........ | 573 | ........ | ........ | ........ | |
| Aug. 14 | Personnel Barracks | ........ | 1 | ........ | ........ | ........ | ........ | ........ | 15 minutes |

# REPORT OF AN ENTOMOLOGICAL SURVEY

## CONDUCTED AT EGLIN FIELD, VALPARAISO, FLORIDA — 1941

*Subject*—To secure information on the extent of the mosquito problem, both disease-bearing and pestiferous, involving the Eglin Field area, and to submit such recommendations as are possible for the control of mosquitoes.

Inspections were made by Dr. John E. Elmendorf, Jr., of the Rockefeller Foundation, acting Director of the Escambia County Malaria Department, with Mr. John A. Mulrennan, entomologist for the department, accompanied by Capt. J. W. Williams of the Medical Corps of Eglin Field.

Inspections were made on two days, May 2nd and May 18th, 1941. These inspections cannot be considered as exhaustive and do not constitute a complete mosquito survey; they should better be termed a reconnaissance. The available time of the Escambia County Malaria Department's personnel did not permit of a complete mosquito survey.

The areas to be inspected were determined on the advice of Capt. Williams regarding the locations of water areas which were considered to be potential breeding areas for mosquitoes, and from the additional information made available relative to these areas by the data presented on the serial photographic map of Eglin Field and its environs.

The approach to the subject was through the means of inspection of water areas for larval forms of the mosquito and also the capture of adult specimens. It must be remembered that inspections performed in the spring do not necessarily represent total facts for the entire summer when breeding almost invariably becomes much more prolific and produces species which are not found during the months of spring.

The finding of mosquito larvae in a certain area definitely inculpates that area as a breeding spot, but does not necessarily indicate it as a cause of a nuisance to a locality unless the species of larvae found be identified and the habits of the adult known, or unless adult capture reveals the presence of this same species in and around the habitations involved when it may be assumed through presumptive evidence that the producing area is actually constituting a nuisance.

Adult captures are most important in a study directed toward mosquito control. By the identification of adults captured, in accordance with a well-oriented plan, their flight habits, their potential breeding areas, as well as their predilection for blood meals, whether animal or human, can be determined. If the predominance of mosquitoes captured represent a salt-marsh species capable of flights of twenty-five miles, the problem of control, from the standpoint of ridding a given locality of a nuisance, may be greatly complicated. If all species identified through capture throughout the year of breeding represent mosquitoes having a flight range of only a mile or so the control problem will be greatly simplified.

It would be without scientific basis and with very little hope for successful outcome to apply larvicides, (oil, paris green or special solutions) to potential breeding areas unless they be proven by the presence of larvae to be mosquito-producing areas and unless, at least, presumptive evidence indicates that these areas produce the mosquitoes causing the actual nuisance and, furthermore, unless it be known that additional mosquitoes contributing toward the nuisance, in predominating numbers, are not coming from areas at great distance from the locality where control is being exercised.

### INSPECTION

As far as the evidence of the aerial photographic map would indicate, all water areas within a mile radius of the Field were visited and inspection made for the larval form of the mosquito.

All areas of importance found breeding at this early period of the breeding season were found to the southeast of the main road leading from Fort Walton to Valparaiso, whereas areas to the northwest were found without breeding at this time, or with so little breeding that it would not constitute, without a considerable increase throughout the warm summer months, a nuisance which would demand, in its present state, any great attention.

On a map of Eglin Field are marked in red those places which were found with mosquito larvae and bearing the identifying numbers: 1, 3, 4, and 5. Number 2 was marked as an area where drainage has already been commenced.

It is interesting to note that in Areas 1, 3, 4, and 5, larvae of *Anopheles* mosquitoes were found which, in addition to their capacity as a nuisance, can also be potential carriers of the malaria parasite.

Although the season is still early to gather comprehensive information from adult captures, these captures were made at one point, and here the only mosquito captured was that known as *Mansonia perturbans,* a species which is not involved in disease transmission, but which is a voracious biter. (See notation later under "Recommendations" regarding further study of this species, as well as continuance of adult captures.)

### RECOMMENDATIONS

1. A person from Eglin Field, preferably one who will remain at least throughout the summer months, should be selected and sent to Pensacola for a period of a week, Monday to Saturday, inclusive, to be trained in the manner of conducting ordinary entomological inspection.

He should be trained in:

Recognition of mosquito larvae;
Differentiation of anopheline larvae from other kinds;
Manner of computing the density of larvae as they occur, at different seasons and in different localities;
Manner of making adult captures and rough identification of species found; (Use of mosquito traps);
When larvicidal work should be utilized and how this should be performed.

2. Larval inspections and adult captures should be continued throughout the whole breeding season, May to September, inclusive, the work executed by above-mentioned trainee, with the following ends in view:

a. Determination of relative importance throughout the season of breeding areas already located.
b. Decision if, when, and where larvicidal work should be instituted.
c. Identification of species most important to area and all species involved.
d. Recognition of all breeding areas responsible for the mosquito population of the area.
e. Density of different adult species throughout the season to be utilized as a gauge of efficiency of control works.

3. A concrete plant should be established for the making of concrete products for the permanent lining of drainage ditches, both 24" concrete pipe and thirds of 24".

*Equipment Indicated*

1 - 24" all-steel tongue and groove concrete pipe form with "header" and 40 ring pallets. Form 2½ feet long, wall 2 inches thick. Approximate price with pallets, $200.00.

1 - 18" pipe form, 3 feet long, walls 1 5/8 inches thick, "header" and 40 ring pallets. Approximate price, $175.00.

1 Hand Tile Machine with adaptation for making 4" and 6" tile. Approximate price, $150.00.

A location for the plant should be selected near to the area where the greatest amount of ditch lining is to be performed and at the same time accessible for carting of cement, sand and gravel and where running water is available. There should be a shed or adequate protection for the housing of cement and a covering for the sand as well.

Cement, sand and gravel can be ordered in advance of manufacturing in the approximate ratio of cement 1, sand 2, pea gravel 3. One carload of cement (132 barrels or approximately 19 cubic yards), $326.00; 40 cubic yards of sand at the price of sand in the locality; 60 cubic yards of pea gravel at the cost of gravel in the locality. (Note: One-half carload of cement can be ordered if storage space is limited.)

*Entomological Equipment*

Entomological equipment should include:

| | |
|---|---|
| 5 Headlee light traps, approximately $25 each | $125.00 |
| 10 Storage batteries for above at $12 each | 120.00 |
| 4 Adult capture tubes at $1.50 each | 6.00 |

4. A man, preferably foreman of the concrete plant, should be sent to Pensacola to be trained at the concrete plant in the manner of making these concrete products as used for malaria drainage ditches.

5. All edifices to be constructed at the Field should be constructed in a complete mosquito proof manner and all existing temporary quarters, barracks, tents, etc., should be mosquito proofed.

6. A further and more detailed study of the breeding places of the species *Mansonia perturbans* should be made in order that special control work for this species may be instituted since control for *Mansonia perturbans* involves a procedure somewhat different from other species. Drainage work should be commenced at areas marked on map as No. 1 and No. 3. The work already started at Area No. 2 should be continued. Brushing and engineering surveys would be the first steps toward such a work of permanent control.

7. The mosquito trap should be used immediately and in different parts of the reservation, for example:

1 night near the Officers' Club
1 night back of the new Barracks
1 night near the Medical Dispensary Building
1 night at different localities to the northwest and across the landing field.

# REPORT OF AN ENTOMOLOGICAL SURVEY

## CONDUCTED AT FLEXIBLE GUNNERY SCHOOL, PANAMA CITY, FLORIDA — 1941

*Subject*—Inspection of the site and environs of the Flexible Gunnery School to determine the problem of mosquito control and offer plans for a solution thereof.

During the days of June 2 and June 3, in association with Mr. Wingate Green, an inspection was made of the site and environs under consideration. It should first be explained that this inspection could not cover all detail, as the time of the writer, Dr. Elmendorf, was limited and only two days could be devoted to this purpose.

The normal approach to an understanding of a mosquito problem directed toward control is through an inspection,

First, to determine what the problem is
Second, the cause of the problem
Third, a solution for the problem

Adult mosquitoes constitute the problem; it is, therefore, logical to know what mosquitoes are present in the area where control is desired. This is accomplished by adult captures, accomplished through the medium of capture stations and also mosquito traps. This work demands time, but once accomplished and the mosquitoes identified, the life habits of those mosquitoes become manifest, including two points of great assistance in defining the problem: namely, their spot of predilection for breeding and their flight range. With this knowledge at hand, the investigator will know what types of water areas he should investigate and also how far away from the area to be controlled he should look for the breeding places. It is to be remembered that different species have flight ranges that vary from a few hundred yards to as much as twenty-five miles and also that all species of mosquito larvae are not appreciably affected by an application of a film of oil on the surface. In a recent inspection, where oiling was contemplated, the writer found that the only species at the time, found in the barracks, were adult *Mansonia perturbans,* which do not breathe by making contact with the surface of the water but which receive their oxygen through attaching themselves to the roots or stems of waterplants. Accordingly, application of oil on the surface of the water does not produce an effective control for this species.

Unless it be known that no salt-marsh mosquitoes are causing the annoyance, which can be determined by adult collection, control work by application of larvicide or drainage may approach 100% efficiency in and around the area to be controlled and still the nuisance will exist if the mosquitoes are being produced in far-off salt-marsh areas.

In the inspection made at Panama City, it was impossible to find any adults at the time of the inspection. No mosquito traps were available for placing at strategic points and time did not permit for an average entomological reconnaissance.

Accordingly, the next subject was investigated, namely, the possible cause of the problem accomplished through searching for water areas and investigation of these areas for larvae of mosquitoes.

Owing to the extreme dry season which has been experienced recently, only small water-containing areas were located, though there was distinct evidence that many more and larger areas had recently contained water, presumably spots favorable for mosquito breeding.

In four locations, larvae of Anopheles mosquitoes were found in their earliest instars or stages, but were too young to permit of species identification. None of these areas were of any significance at the present time from the standpoint of constituting a mosquito nuisance, although their presence indicated that breeding was possible and that, a point of more significance, possibly potential malaria-bearing Anopheles were present around and even inside the reservation.

### INSPECTION

The inspection was made by following the main highway and running off to the south and the north as far as the terrain would permit and taking samples of all water areas as well as by taking the road, marked with red pencil on the aerial photograph map, and continuing along the road from the site where building is now being commenced eastward to within a mile and a half of the eastern end of the army reservation. Here again, all water areas encountered were sampled.

As previously stated, breeding in all areas was, at that time, negligible in the areas surveyed and it is believed that a fair sample of the area involved was visited on which to base valid conclusions for the base and its immediate environs.

The entire expanse of the district is a flat plain which is crossed by numerous old open ditches running approximately northward into the Bay and southward into the Gulf; the dividing line between the direction of flow is aparently the highway leading to Port St. Joe. Evidence was continuously found of areas which had previously held water and which were at the time of inspection. dry.

RECOMMENDATIONS:

1. It is believed that the crew which has at present been organized for oiling could better devote their time in clearing pathways through the brush at indicated spots so that potential breeding areas could be easily reached.

2. The person in charge of mosquito control should thoroughly orient himself on the whole terrain and mark on a map all areas of water existent at present, those where larvae are found, and also those which probably will hold water after rains. All of them should be marked with distinctive markings.

3. A person should be available, trained in the minimal basic knowledge of entomology, in order to be capable of recognizing the general classifications of larvae and adults and possess basic knowledge, also, of trapping and catching adults. Sufficient knowledge could in all probability be secured through training which could be given at Escambia County in the period of a week to ten days.

4. A boat should be available for more easy access and subsequent inspection of these areas lying contiguous to the Bay and where roadways do not exist.

5. A general topographical survey should be complete for the whole district in order that elevations indicating available fall can be determined for general districts.

6. A close understanding of plans should exist between those engaged in mosquito control and those planning the general storm-drainage system or the whole terrain. Frequently, it may be possible to tie the drainage of residual waters and waters in themselves not detrimental to the mechanical operation of the base but of importance from the mosquito eradication standpoint, into the general drainage system being planned.

7. *Traps should be immediately available.* These should be located at strategic points around the habitations, or localities selected for future habitations, and also around breeding areas for the routine weekly collections and identification of adults.

8. One week after the first rains, the person in charge of the mosquito control should visit all areas which he, in the interim, has visited and noted on his spot map and see in actuality how many contain water and how many are actual breeders of mosquitoes. At such time, if permanent control work is impossible, larvicide (oiling) can be utilized on a rational and practical basis, especially if the identification of the larvae found indicate that they are a species whose flight range permits of their reaching the area where the nuisance should be abated.

9. Minimal entomological equipment should be immediately secured:
    a. Traps — Headlee light trap (New Jersey or its equivalent) and, if possible, some animal bait traps as well. Six traps at $25 and 10 strong batteries, 6 volts, at $12.50 each.
    b. Adult capture tubes — 6
    c. Small glass vials for carrying larvae to base — 2 gross.
    d. Large-mouth dropping pipettes for collection of larvae — 6.
    e. Pasteboard pill boxes for carrying adults after capture — 2 gross.
    f. Entomological belts for carrying vials — 3.
    g. Six-ounce tins of chloroform for killing adults — 2.
    h. Small entomological magnifying glasses — 3.

It should be noted in association with entomological collections of larvae or adults that specimens from each distinct locality should be so labelled that their exact point of origin will subsequently be known; for that reason, necessity of vials and pill boxes in order that all collections may be separately and distinctly labelled.

10. In the construction of all temporary buildings, especially those used for night work or sleeping quarters, these should be completely mosquito proofed.

11. Assuming that some permanent work in the nature of concrete-lined ditches will be undertaken, it is recommended that some equipment and materials be secured for the manufacture of such products. The process of manufacture can be demonstrated by the Escambia County Malaria Department at Pensacola.

| | |
|---|---|
| Hand tile machine with 4" and 6" adaptations for the manufacture of sub-soil pipe. | $200.00 |
| 1 Tongue and groove 24" pipe form for manufacture of concrete pipe 2½' long with 2" wall, with collapsible inner core | $ 55.08 |
| 30 Ring pallets for the above at $5.23, price | $156.90 |
| 1 Ring header for finishing top of pipe form 24" x 2"; price | $ 4.95 |
| 1—18" tongue and groove pipe form with 1 5/8" wall, 3' long; price | $ 54.00 |
| 1—18" ring header for above; price | $ 3.10 |
| 45 Pallets for the above, 16" x 1 5/8" at $5.03 | $136.35 |

It would be suggested as well that the following materials be ordered:

1 carload of cement
40 cubic yards of sand
60 cubic yards of pea gravel

12. A locality should be selected for a concrete plant where piped water is available and where a shed for storing of cement and sand is already present or can be built. This plant should be situated in such location that materials can be easily deposited there and at the same time be close to the area where the major portion of the manufactured products are to be used.

## PRINCIPLES, AIMS, ORGANIZATION AND SCOPE OF ACTIVITIES OF THE BUREAU OF MALARIA CONTROL AS OUTLINED AND APPROVED BY THE BUREAU'S BOARD OF CONSULTANTS*

### POINTS TO BE DISCUSSED

1. Discussion of general plans for operation of Bureau.

2. Should the routine activities of malaria investigation and control take second place this year to the indicated and requested work of mosquito control at military bases?

3. Is the schedule for routine activities of the malaria control program approved.

4. The concept of the purposes of the Malaria Bureau warrants the inclusion of the following branches of service within the department:

   An agency for the education of the general public and interested officials relative to malaria control program and for promoting the ends of malaria control;

   An organization to conduct routine and special scientific investigation;

   A planning body for types of control to be selected;

   A nucleus to serve in training of local personnel;

   A supervisory body for investigative works in progress;

   An active supervisory agent of all control works in progress except drainage and fill which, when selected as a control measure, will be supervised in its technical execution by the Bureau of Engineering.

5. Advisability of incorporating research problems in routine activities of department and review of projected research program with corrections, deletions or additions as indicated.

6. Discussion of publicity program.

7. Review of the budget with suggestions, if any, for future modification.

---

*Dr. W. V. King, Mark F. Boyd, Mr. H. A. Johnson, and Dr. L. L. Williams, Papers presented at first meeting, August 23, 1941.

## ROUTINE DUTIES OF THE FLORIDA STATE BOARD OF HEALTH'S BUREAU OF MALARIA CONTROL

### GENERAL CONSIDERATIONS

The purpose of the Bureau of Malaria Control is to investigate malaria incidence and intensity thoughout the state of Florida as well as to study the associated entomological and engineering facts; to make special studies in localities where control work is economically possible, studies sufficiently detailed to permit of plans for control being formulated, together with estimates of annual funds required, to supervise and effect the inauguration of such works as well as their continued operation; to train the local health personnel in the manner of conducting the routine procedures; to conduct a general campaign of education; to assist the local health officer in presenting facts directed toward securing the funds necessary for the prosecution of the work, always remembering that with long-time planning and patience, malaria can be erradicated by a scientific application of funds which, though perhaps moderate, are annually devoted toward this end.

The Bureau of Malaria Control should assist the local officials in preliminary studies, financial estimates, plans for control, supervision of works of control and training of local personnel; whereas, the locality should provide the local personnel for training and provide the funds to defray the expense of the actual control works to be effected in their locality.

### PRELIMINARY ACTIVITIES OF THE BUREAU OF MALARIA CONTROL

1. Secure all available statistical information on mortality and morbidity of malaria for as many years as possible and make suitable maps indicating the present and known status of malaria by cities and counties in Florida.

2. Secure all available entomological data from the State Board of Health, Dr. W. .V King's laboratory, and special entomological studies, conducted by established agencies, revealing the presence or absence of anopheline mosquitoes by areas.

3. Secure all available maps of all counties of Florida, including those which have topographical or contour data, where these may exist.

4. Send special circular letter to all county health departments and to selected physicians and institutions requesting history and definite information relative to malaria in their locality. The circular letter would carry with it a special questionnaire indicating the type of information desired.

## I. ROUTINE ACTIVITIES RELATED TO SURVEYS

### ORIENTATION STUDIES AND ACTIVITIES

1. Entomologist:

a. Indicate on maps all entomological data already available related to anopheline breeding by counties and localities.

b. Make sample adult captures and larval collections at suitable periods of the year in areas propitious for anopheline breeding, beginning in those areas where statistical data and history prove or suggest the presence of malaria and where the economic situation of the locality would indicate that actual control would be desired, giving special attention to areas which answer the above stipulations and where a survey has already been requested. As tentative work has been commenced in Tallahassee, Quincy, and Marianna, these districts could be logical points for beginning such a survey. (See page 24 for exception of Emergency Activities.)

c. Record all data secured on maps with suitable designation to indicate species of larvae and adults found and, where possible, estimates of density.

NOTE: Maps eventually should be prepared, in detailed studies, showing monthly variations.

d. In every locality where a health organization exists, the entomologist should make a special effort to have one of the personnel of the local department, designated by the local director of health, accompany him in order that local personnel may receive training in this phase of the subject at the earliest possible time.

2. Engineering Department. (Engineer to be named with mutual approval of the State Health Officer and Directors of the Malaria and Engineering Bureaus. From the administrative standpoint the engineer will be under the director of the Bureau of Malaria Control, while from the standpoint of the technical phases of his engineering plans and execution of drainage and fill programs when selected as a means of control, he will be supervised by the Bureau of Sanitary Engineering.)

a. Insofar as may be possible and especially in those areas where statistical evidence and history indicate the presence of malaria, complete maps of the district (county, municipality, military base) should be secured or should be prepared, always bearing in mind that the areas of immediate interest are those where control work is indicated, desired and economically possible. On these maps should be located all the topographical data possible, including water courses, ponds, lakes, permanent standing water, with relative elevations of the important water areas and elevations of potential discharge points.

b. Secure and note data relative to the geological formation by areas or districts.

c. Secure and index complete listing of equipment necessary for malaria control operations, indicating where secured and prices.

d. Analyze Escambia County data and that available in the State Board of Health, Engineering Bureau, noting costs of materials, labor, amount of materials necessary per unit of district, area, or in case of screening of windows, doors, etc., of the following types of permanent control:

24″ closed drainage system standard pipe
18″ closed drainage system standard pipe
24″ closed drainage system heavy duty pipe
1/3 of 24″ (invert) drainage system with and without sidewalls
Panama invert drainage system with and without sidewalls
6″ Panama invert drainage system with subsoil drainage
4″ Panama invert drainage system with subsoil drainage
Construction of standard manholes
Construction of standard sandtraps
Costs of various larvicides and cost of application per area
Costs of materials necessary for screening; cost of labor for manufacture and labor for installation.

3. Director of Bureau (Clinical Side)

a. Compile and analyze all statistical data secured and make maps of the state for presence and intensity of malaria.

b. Indicate on maps the relationship of historical, statistical and clinical data to entomological findings.

c. Make splenic and associated blood examination throughout the state and in specially selected areas especially at the height of malaria incidence, note data secured on appropriate maps.

d. Determine from above data, from engineering studies, associated studies, and from the economic status of the locality, the types of control which are indicated.

e. Take assistant malariologist on all trips and train him in the manner of organization of the Bureau as well as the technique of specific procedures.

f. Arrange for suitable disposition of time of local county health department personnel, to be devoted to malaria control.

g. Formulate plans to effect a better reporting of malaria deaths and, if possible, malaria morbidity. Make special plans for facilitating blood examinations.

h. Organize an educational program operating closely with the department of public relations and through the medium of moving pictures, conferences at schools, clubs and health meetings, and by personal interviews.

## II. SPECIAL ROUTINE ACTIVITIES (Survey and Control)

### GENERAL CONSIDERATIONS

1. It is a principle of the Florida State Board of Health that no individual disease control activity be instituted in a locality, unless an established health organization exists in that locality. The one exception to the rule is control work made necessary from an emergency standpoint, such as would occur in case of epidemics, national defense needs or other similar situations.

In accordance with this principle, malaria control work would not be inaugurated in localities which did not have county health units unless emergency conditions demanded such work.

NOTE: This decision by the State Board of Health is based upon the principle that special health activities should not supersede the more important phase of general health programs. In case of the Malaria Department, acceptance of this decision is doubly indicated, as the Malaria Department must train local personnel to carry on the continued execution of the control program. Without a local health unit, there would be no personnel available for training.

2. The expansion of actual control activities will be gradual, the department assuming the obligation of such works only to the extent that the available time of their personnel will permit of original studies, training of local personnel and subsequent supervision of organized activities.

3. Selection of areas for inauguration of control works will be based upon the prevalence, incidence and intensity of malaria, the interest of the populace and officials and the economic situation of the locality.

4. It is the aim of the malaria bureau to function, especially as regards control activities, in the closest collaboration with the epidemiological, engineering and local health departments.

### DETAIL OF ACTIVITIES IN ESTABLISHING OF CONTROL OPERATIONS

1. The personnel of the clinical and entomological branches will execute original studies to define the malaria problem. If the extent of malaria problem warrants control, the Bureau's engineer will prepare maps, if these are not already available, including sufficient detail to permit of an evaluation of a drainage program, both from the standpoint of practicability, as well as finances involved. During these preliminary studies, local personnel will be offered training in all the branches of the survey.

2. Once the type of control to be employed has been selected, and the finances have been roughly estimated, the officials will be approached with the end in view of securing annual finances for the execution of the work.

3. With finances approved by the locality, control work will be begun with the state Bureau of Malaria Control inaugurating the control operations and continuing in the training of local personnel until such time as local personnel may be competent to carry on the prosecution of the work with periodical supervision offered by the state Bureau of Malaria Control.

4. Where and when possible, the cooperation of all Federal agencies will be utilized to the utmost in carrying forward the works of control, such assistance for example as W. P. A. labor for drainage, N. Y. A. assistance for manufacturing screening products, F. S. A. donation of materials for screening houses of their loan clients.

5. When a drainage program is selected as the approach to the control of malaria, the engineering plans, as prepared by the Department's engineer, will be submitted by the Bureau of Malaria Control to the Board of Health's Bureau of Sanitary Engineering for any additional suggestions that this department may see fit to recommend.

If and when works of actual control are instituted which involve measures closely related to engineering practice, such as drainage or fill, it is expected that the Bureau of Sanitary Engineering will collaborate closely with the Bureau of Malaria Control and will render such technical assistance to the malaria engineer as may be indicated or requested for the proper execution of the engineering work involved.

It will be the obligation of the Bureau of Malaria Control in relation to indicated arrangements with officials, to take all steps necessary and to make all arrangements preparatory to the inauguration of any such engineering phases of control, to relieve the engineering bureau of any such responsibilities during the course of the work, and to be responsible to the officials regarding the correct and economic disposition of their funds used in control as well as to accept responsibility for the results of the measures they have recommended.

The Bureau of Sanitary Engineering is not expected to accept responsibility for general malaria control measures, recommended and decided upon by the Bureau of Malaria Control. It is desired that the Bureau of Sanitary Engineering may find it possible together with their other activities to cooperate fully with the Bureau of Malaria Control in these engineering phases of control and to assist the malaria engineer both in the original plans for drainage and fill as well as during the period of installation of any such measures or systems.

6. When the operations in any locality selected for control are sufficiently advanced to permit, the personnel of the Bureau of Malaria Control will withdraw and continue with the routine study of the malaria prevalence and intensity in the state of Florida, or institute studies for additional control operations in other localities, if these are indicated, returning at intervals for supervision of established control works.

## III. SPECIAL, IMMEDIATE OR EMERGENCY ACTIVITIES OF THE BUREAU OF MALARIA CONTROL

### GENERAL CONSIDERATIONS

Florida has been selected as one of the localities for the establishment of military bases with the end in view of preparing for national defense. The medical department of the military branches are at present utilizing freely the state health organizations for the control of mosquito breeding, both the noxious and disease-carrying varieties. Accordingly, it may be considered as necessary and advisable for the period of the emergency to postpone the adoption of the routine activities of the Bureau of Malaria Control, as herein outlined, and direct the activities of the Bureau toward the problem of general mosquito control.

If this view of the temporary service of the Bureau be accepted, the following recommendations for the functioning of the Bureau would be given:

1. The general scope of activity of the Bureau should be preliminary studies of military localities to define the mosquito problem, both the noxious and disease-bearing varieties; submit plans for the solution of the various problems involved; draw up lists of equipment necessary for the various phases of the work; train a local personnel to execute the routine studies indicated; supervise the effects of control work and indicate further measures of control to be deducted from a continued study of each locality. Entomological studies, especially, will assist in the evaluation of the additional mosquito problems arising with changing seasons as well as in scientific determination of the results accomplished by the control works instituted.

2. It is believed that the supervision of actual control operations in the situation of the National Emergency should be carried on as at present is the case; namely, that the engineering bureau continue with the execution of control work in larviciding and associated works in military bases. In the future, they would be assisted in this work by the studies made and reports rendered by the Bureau of Malaria Control containing information which would afford orientation regarding the recommended measures of control as well as an evaluation of the results produced by the methods being employed, and the possible use of additional measures, when indicated.

3. The areas to be selected for study would be chosen by the State Health Officer on the basis of the relative importance of the area as represented to him by the military authorities.

NOTE: The Board of Consultants for the Bureau of Malaria Control to be named by the State Health officer will convene as early as may be possible after July 1, 1941, to review the outline of activities of the Bureau and to give their recommendations regarding principles governing the activities of the Bureau as well as offer specific recommendations related to details of procedure.

At the first meeting of the Board, approximate dates for meetings throughout the year will be decided upon. It is recommended that they convene not less than once or more than four times a year.

The function of the Board of Consultants is to assist the Director of the Bureau of Malaria Control in the effective operation of his Bureau by offering their critique regarding the work accomplished, the measures used, plans for the future, and allocation of funds to different phases of the bureau's activities, to give general counsel on all allied activities of the bureau, and to register their approval of measures finally adopted.

### BUREAU OF MALARIA CONTROL BUDGET
### JULY 1, 1941 TO JUNE 30, 1942

Budget No. 68729.
Date: June 27, 1941

| Item No. | *Description* | | Total Allotment |
|---|---|---|---|
| | PART I — STATE SERVICE | | |
| 1 | Salary and Travel of Director (Dr. J. E. Elmendorf, Jr. — To be paid direct by the Rockefeller Foundation) | | |
| 2 | Salary of Assistant Director | $3,300.00 | |
| 3 | Salary of Sanitary Engineer | 2,700.00 | |
| 4 | Salary of Entomologist | 2,700.00 | |
| 5 | Salary of Stenographer-Clerk | 1,200.00 | |
| 6 | Travel of Assistant Director, Sanitary Engineer and Entomologist | 3,000.00 | |
| 7 | Adjustment of salaries and travel as necessary and special services on perdiem basis | 800.00 | |
| 8 | Equipment and Supplies | 600.00 | |
| 9 | Contingencies | 500.00 | $14,800.00 |
| | SOURCE OF FUNDS: | | |
| | U. S. Public Health Service | $ 6,600.00 | |
| | State Board of Health | 6,600.00 | |
| | Rockefeller Foundation | 1,600.00 | |
| | PART II — PENSACOLA CITY & ESCAMBIA COUNTY SERVICE | | |
| 10 | Salary of Sanitary Engineer | $2,400.00 | |
| 11 | Travel of Sanitary Engineer | 600.00 | 3,000.00 |
| | SOURCE OF FUNDS: | | |
| | City of Pensacola and County of Escambia (1) | $ 1,000.00 | |
| | Rockefeller Foundation | 2,000.00 | |
| | | $ 3,000.00 | |
| | | | $17,800.00 |

(1) It is understood that the City and County will also finance the necessary labor and material for a continuation of the drainage and screening measures at an annual approximate cost of $5,000 or more.

## PUBLIC RELATIONS PROGRAM OF MALARIA CONTROL

The theme of the program at the outset should be general in nature, stressing at every opportunity the fact that malaria is not controlled by proprietary medicines, but by application of selected procedures after scientific study. There appears to be widespread misconception in Florida of this basic truth.

I. Relations with Groups and Organizations

A. Relations with Medical Society

1. Endorsement of the Malaria Control Program by the Florida Medical Association should also be solicited at the first possible opportunity.

2. Secure place for articles in medical journals, as indicated under "Health and Medical Bulletins".

3. Consultant service on diagnosis of malaria cases should be offered private physicians.

4. Issuance of periodic mimeographed bulletins to the medical profession of Florida relative to the progress of the Malaria Control Program, giving them any specific data secured through investigations, such as morbidity reports, statistics from other states as related to Florida, and results of the splenic survey.

5. Provide for lectures on malaria by authorities at Annual Short Course for Physicians.

6. Participation in annual meeting Florida Public Health Association, with the ultimate purpose of developing a malaria section of the Association.

7. Provide a scientific exhibit at the Florida Medical Association convention and Florida Public Health Association convention. (See Exhibits).

B. Staff Relations, State Board of Health

1. Periodic lectures, demonstrations and motion pictures on malaria control by the director for members of the staff.

2. Mimeographed bulletin to the staff of the State Board of Health units relative to the findings of the Bureau of Malaria Control.

3. Copies of all new malaria pamphlets and other memorandums should be distributed as issued to members of the staff.

C. Official Organization Relationship

Farm Security, Home Demonstration, State Welfare Board, and local W. P. A. offices should be supplied with information concerning the program, and a sample of pamphlets that might be available for distribution by case workers.

D. County Commissioners, School Boards, and Florida League of Municipalities.

It would be of value for the Bureau to have representation on the annual program of the County Commissioners' state meeting, and also that of the County School Board members, County Superintendents, and the Florida League of Municipalities.

E. Nurses

Lectures could be given before nursing groups and at the annual meeting of the State Nurses' Association.

F. Red Cross

Talks at regional meetings.

G. State Board of Health and Board of Consultant Relations

1. Copies of all pamphlets and reports to be furnished members of the State Board of Health, the State Health Officer and Assistant State Health Officer, and members of the Bureau's Board of Consultants.

2. Periodic reports of progress to each of these.

H. School and College Relationship

1. Talks, practical demonstrations, motion pictures before health education, economics, biology, and sociology classes as institutions of higher learning at both summer and winter sessions.

2. As program shifts to more specific phases, a simplified version of the above should be applied to secondary schools and to teachers' meetings.

3. Talks before annual meeting of the Health and Physical Edution sections of the Florida Education Association.

II. Relations through Publications and Other Publicity Media

A. Press

1. General releases for the Associated Press, twice a month, beginning immediately.

2. The same type of release for magazine, trade papers and civic publications.

3. Releases of a more specific and simple nature for weeklies, semi-weeklies, high school and college papers.

4. Feature articles from time to time as warranted.

B. Health and Medical Bulletins

1. Articles in *Florida Health Notes* and the *Florida* and the *Southern Medical Journal* as space is available. (See Medical Relations).
2. Development of some phases of the program which would be acceptable to *Survey Graphic, Hygeia* and similar national publications.
3. Popular type data for the State-Wide Public Health Committee Bulletin and Florida Health, which is predominantly a lay medium.

C. Exhibits

1. Preparation of duplicate exhibits of a general nature, to send around state for local display.
2. Scientific exhibits at State Conference of Social Work, Florida Federation of Women's Clubs, Florida Congress PTA, State Chamber of Commerce and, indicated above, at the Florida Medical Association and the Florida Public Health Association.
3. Demonstrations in schools.
4. Suggestions for exhibits that school children might construct.

D. Radio

1. Interviews or round-table discussions in localities visited by the Director of the Bureau.
2. Transcriptions would be more practical and adaptable to wide coverage.

E. The Office

A permanent and periodically changing demonstration, or exhibit, should be maintained in the office of the Bureau of Malaria Control and memorandum of changes should be issued to all staff members.

F. Library

A section for malaria books should be set aside and plainly marked. Notices on new books, articles of special interest should be sent to staff members of central office and county health units.

G. Civic and Industrial Relationship

Talk on "Economic Disease No. 1" before annual convention of State Chamber of Commerce, Junior Chamber of Commerce and industrial groups.

H. Intensive Local Campaign

1. Talks, demonstrations, and motion pictures at meetings of local governmental officials.
2. Talks, practical demonstrations, and motion pictures at schools, civic clubs, PTA's, Women's Clubs, and Chamber of Commerce.
3. Malaria study program by PTA and Women's Clubs.
4. Talks to medical society, explaining program.
5. Personal conferences with all editors and radio managers.
6. Talks before civic, fraternal, and religious and social groups.
7. In rural sections, Saturday night motion pictures on the Court House square, with Director of Bureau on hand to answer questions.
8. Training of all health board personnel in area to enable them to talk knowingly of the program.
9. Talks and motion pictures at Negro churches.
10. Envelope stuffers for industrial payrolls.
11. Talks, demonstrations, and motion pictures at teachers' meetings.
12. Use of exhibits, posters, and pamphlets as indicated.
13. Books on malaria on display at local library; reviews in the newspapers.
14. Newspaper articles in daily or weekly press, radio programs, use of any industrial house organs, high school papers, and other available media.

This intensive campaign of education should be divided into two phases:

1. Securing of financial cooperation of the locality in the campaign.

2. Maintenance of interest during opening periods of the work itself and while it is in progress.

## RESEARCH ACTIVITIES OF THE BUREAU OF MALARIA CONTROL

The following program is outlined in the belief that in the practical execution of all field work valuable information can be secured and new conclusions can be deduced from a careful planning of the data to be collected, recorded and by the selection of certain subjects for special investigation. These special subjects, whose study is not too time-consuming nor too difficult of accomplishment, should bear a close relationship to the routine work of the bureau and should be carried on simultaneously with this work.

### CLINICAL

1. Study of blood positives as related to splenic positives in the same groups over successive years.

2. Relation of density of anopheline mosquitoes and blood positives to clinical manifestations of the disease.

3. Study of persistence of splenic enlargement as found under natural conditions and when influenced by treatments. Control groups for treatments should be selected by dividing families, half with splenic enlargement in each house remaining untreated and half treated.

4. Investigations of *Anopheles crucians* as an active malaria vector under natural conditions.

### ENTOMOLOGICAL

1. Continued studies of densities of anophelines by season and by year and relation to clinical manifestations of disease.

2. Study of factors associated with variations in breeding throughout the year and in different potential breeding spots in the same locality.

3. Observations and habits of the vector species in localities where actually found.

4. Continuation of observation on effectiveness of different types of traps.

### ENGINEERING

Experiments with small invert for ditch linings.

# MATERNAL AND CHILD HEALTH

R. C. HOOD, M. D., *Director*

The Bureau of Maternal and Child Health was under the direction of Dr. William H. Ball for the first six months of the calendar year 1941. The resignations of Dr. Ball on July 1, 1941 to enter private practice, and of Dr. Samuel Norwood, Assistant Director and Obstetrical Consultant, on January 1, 1941 to take post-graduate work in obstetrics, created vacancies difficult to fill. These physicians contributed to the establishment of maternal and child health services as an integral part of the Florida public health program.

During this period the following programs were carried out. Post-graduate training in obstetrics was provided to Dr. Ball and Local Health Directors Stebbins, McMurray, Rice, and Ravitch at the Chicago Lying-In Hospital. Post-graduate training in public health nursing was given to 26 nurses at George Peabody College, the University of Pennsylvania, William and Mary College, and the University of St. Louis. Fees and travel expense for lecturers in obstetrics and pediatrics were provided for the Graduate Course of the Florida Medical Association and for the Post-Graduate Seminar for Negro physicians given under the sponsorship of the Florida State Board of Health, the Florida Tuberculosis and Health Association, and the Florida Medical, Dental, and Pharmaceutical Association. The State Board of Health began subsidizing maternity care for low income groups at the Pensacola Maternity Home. A program of immunization against contagious diseases was conducted by local health units. The annual study of maternal mortality, conducted in co-operation with the Florida Medical Association, was continued. Additional equipment was purchased for local maternal and child health clinics. A state-wide study of the anemias of pregnancy through blood specimens collected at maternity clinics was initiated and ferrous sulphate tablets provided where indicated. An intensified educational program on maternal and child health problems was conducted through parent-teacher associations and women's clubs by means of addresses, the press, radio, posters, and demonstrations.

The dental trailer and salary and travel for a field dentist were provided from Maternal and Child Health funds. The trailer began operation in rural areas in June, 1941. A separate report of the work of the trailer has been included in the report of the Bureau of Dental Health. The report of the dental service provided by local health departments and part-time dentists employed by local health units is given in a tabulated

TEXT MAY BE LOST DUE TO TIGHT BINDING

report of activities. (See Table 2). During the year, educational material and exhibits on dental health were also provided through Maternal and Child Health funds.

On July, 1, 1941, the supervision of the maternal and child health services was transferred to the present Director. The programs previously developed and as outlined above were continued for the remainder of the calendar year and additional activities were initiated.

Because the funds available for maternal and child health services from all sources (Federal, state, and local) were insufficient to carry out a satisfactory state-wide program, the State Health Officer and the Director of the Bureau made a trip to Washington to present a request to the Children's Bureau and the U. S. Public Health Service for additional funds and personnel.

The supplemental funds and personnel obtained from these Federal agencies made it possible to improve the quality of care and increase the quantity and scope of health services for mothers and children. These funds increased the amount available for expenditure for maternal and child health services for the fiscal year 1942 to $20,000.00, an amount considerably in excess of that available for any previous year.

It is significant that for a number of years the percentage of the cost of maternal and child health services borne by the Federal Government has steadily increased. During the fiscal year 1942, the Federal Government paid approximately 75 per cent of the cost of all state and local maternal and child health services.

The National Emergency created a serious shortage in qualified professional personnel available for maternal and child health services so that it was impossible to obtain a trained obstetrician for the position of assistant director. The necessity for a complete revision of the qualifications of public health nutrition consultant delayed the Merit System examination and this position also remained unfilled at the end of the calendar year. Pending the employment of personnel for these positions, the work was carried on by the Director with such voluntary technical assistance as could be obtained in each of these fields.

The state-wide program of civilian defense included a Nutrition Advisory Committee consisting of staff members from institutions, agencies, and organizations engaged in nutritional work. The State Health Officer was represented on the Committee by the Director of the Bureau of Maternal and Child Health. A number of meetings of the Committee were held during the year. General principles and policies regarding nutritional problems in the state were discussed. A manual for the use of County Nutrition Committee Chairmen was prepared for distribution.

TABLE 1. — FLORIDA STATE BOARD OF HEALTH, FLORIDA RESIDENT MATERNAL AND INFANT DEATHS AND MORTALITY RATES BY COUNTIES, FOR CALENDER YEAR 1940*.

| | MATERNAL DEATHS PER 1,000 LIVE BIRTHS | | | | | | INFANT DEATHS PER 1,000 LIVE BIRTHS | | | | | | DEATHS CAUSED BY | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | | White | | Colored | | Total | | White | | Colored | | Stillbirths | | | Premature Births | | |
| | Deaths | Rate | Deaths | Rate | Deaths | Rate | Deaths | Rate | Deaths | Rate | Deaths | Rate | Total | White | Colored | Total | White | Colored |
| TOTALS FOR FLORIDA | 215 | 6.4 | 118 | 5.0 | 97 | 9.8 | 1,812 | 53.8 | 1,052 | 44.2 | 760 | 76.8 | 1,415 | 683 | 732 | 566 | 369 | 197 |
| By Counties | | | | | | | | | | | | | | | | | | |
| Alachua | 2 | 2.6 | 0 | ........ | 2 | 5.7 | 69 | 90.6 | 26 | 62.8 | 43 | 123.6 | 51 | 15 | 36 | 19 | 7 | 12 |
| Baker | 2 | 17.1 | 1 | 11.9 | 1 | 30.3 | 7 | 59.8 | 2 | 23.8 | 5 | 151.5 | 5 | 3 | 2 | 0 | 0 | 0 |
| Bay | 4 | 8.3 | 4 | 10.1 | 0 | ........ | 25 | 51.9 | 20 | 50.5 | 5 | 58.1 | 14 | 9 | 5 | 6 | 6 | 0 |
| Bradford | 2 | 8.4 | 0 | ........ | 2 | 30.3 | 15 | 62.8 | 10 | 57.8 | 5 | 75.8 | 11 | 9 | 2 | 2 | 1 | 1 |
| Brevard | 2 | 7.4 | 0 | ........ | 2 | 18.3 | 14 | 52.0 | 6 | 37.5 | 8 | 73.4 | 13 | 5 | 8 | 6 | 3 | 3 |
| Broward | 7 | 10.1 | 3 | 7.9 | 4 | 12.9 | 34 | 49.2 | 16 | 42.1 | 18 | 57.9 | 35 | 17 | 18 | 10 | 7 | 3 |
| Calhoun | 3 | 12.8 | 3 | 15.2 | 0 | ........ | 16 | 68.4 | 12 | 60.6 | 4 | 111.1 | 13 | 13 | 0 | 4 | 2 | 2 |
| Charlotte | 0 | ........ | 0 | ........ | 0 | ........ | 1 | 23.3 | 1 | 26.3 | 0 | ........ | 4 | 3 | 1 | 1 | 1 | 0 |
| Citrus | 1 | 9.3 | 1 | 12.7 | 0 | ........ | 4 | 37.4 | 1 | 12.7 | 3 | 107.1 | 3 | 1 | 2 | 1 | 0 | 1 |
| Clay | 1 | 8.4 | 1 | 11.8 | 0 | ........ | 5 | 42.0 | 4 | 47.1 | 1 | 29.4 | 4 | 2 | 2 | 1 | 1 | 0 |
| Collier | 0 | ........ | 0 | ........ | 0 | ........ | 6 | 56.1 | 4 | 46.0 | 2 | 100.0 | 6 | 4 | 2 | 2 | 2 | 0 |
| Columbia | 6 | 16.7 | 2 | 9.5 | 4 | 26.8 | 23 | 63.9 | 15 | 71.1 | 8 | 53.7 | 16 | 3 | 13 | 4 | 2 | 2 |
| Dade | 24 | 5.8 | 15 | 4.7 | 9 | 9.2 | 204 | 49.1 | 122 | 38.3 | 82 | 84.2 | 139 | 76 | 63 | 84 | 55 | 29 |
| DeSoto | 1 | 6.6 | 1 | 8.3 | 0 | ........ | 6 | 39.7 | 3 | 24.8 | 3 | 100.0 | 5 | 4 | 1 | 3 | 1 | 2 |
| Dixie | 1 | 6.2 | 1 | 10.4 | 0 | ........ | 19 | 117.3 | 10 | 104.2 | 9 | 136.4 | 11 | 8 | 3 | 6 | 4 | 2 |
| Duval | 23 | 6.5 | 11 | 4.6 | 12 | 10.6 | 162 | 45.9 | 106 | 44.2 | 56 | 49.5 | 162 | 60 | 102 | 47 | 29 | 18 |
| Escambia | 11 | 6.7 | 10 | 7.8 | 1 | 2.9 | 104 | 63.8 | 65 | 50.7 | 39 | 111.7 | 67 | 37 | 30 | 43 | 24 | 19 |
| Flagler | 1 | 16.4 | 0 | ........ | 1 | 25.0 | 1 | 16.4 | 0 | ........ | 1 | 25.0 | 5 | 0 | 5 | 0 | 0 | 0 |
| Franklin | 1 | 7.9 | 0 | ........ | 1 | 25.0 | 6 | 47.2 | 4 | 46.0 | 2 | 50.0 | 2 | 1 | 1 | 3 | 2 | 1 |

*Prepared by Bureau of Vital Statistics, Florida State Board of Health.

TABLE 1. — FLORIDA STATE BOARD OF HEALTH, FLORIDA RESIDENT MATERNAL AND INFANT DEATHS AND MORTALITY RATES BY COUNTIES, FOR CALENDER YEAR 1940*. — (Continued).

| | MATERNAL DEATHS PER 1,000 LIVE BIRTHS | | | | | | INFANT DEATHS PER 1,000 LIVE BIRTHS | | | | | | DEATHS CAUSED BY | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | | White | | Colored | | Total | | White | | Colored | | Stillbirths | | | Premature Births | | |
| | Deaths | Rate | Deaths | Rate | Deaths | Rate | Deaths | Rate | Deaths | Rate | Deaths | Rate | Total | White | Colored | Total | White | Colored |
| Gadsden† | 5 | 9.0 | 2 | 10.8 | 3 | 8.2 | 51 | 92.2 | 13 | 70.3 | 38 | 103.3 | 28 | 8 | 20 | 8 | 3 | 5 |
| Gilchrist | 1 | 11.0 | 1 | 12.5 | 0 | ........ | 6 | 65.9 | 4 | 50.0 | 2 | 181.8 | 4 | 2 | 2 | 1 | 1 | 0 |
| Glades | 0 | ........ | 0 | ........ | 0 | ........ | 1 | 22.2 | 0 | ........ | 1 | 66.7 | 3 | 1 | 2 | 0 | 0 | 0 |
| Gulf | 0 | ........ | 0 | ........ | 0 | ........ | 7 | 43.8 | 3 | 26.5 | 4 | 85.1 | 6 | 3 | 3 | 3 | 1 | 2 |
| Hamilton | 3 | 11.5 | 1 | 7.3 | 2 | 16.3 | 12 | 46.2 | 8 | 58.4 | 4 | 32.5 | 14 | 10 | 4 | 2 | 2 | 0 |
| Hardee | 0 | ........ | 0 | ........ | 0 | ........ | 10 | 49.8 | 8 | 42.8 | 2 | 142.9 | 8 | 6 | 2 | 3 | 3 | 0 |
| Hendry | 0 | ........ | 0 | ........ | 0 | ........ | 6 | 60.6 | 3 | 43.5 | 3 | 100.0 | 2 | 1 | 1 | 3 | 0 | 3 |
| Hernando | 0 | ........ | 0 | ........ | 0 | ........ | 6 | 52.2 | 1 | 12.7 | 5 | 138.9 | 4 | 2 | 2 | 2 | 1 | 1 |
| Highlands | 1 | 5.2 | 1 | 6.9 | 0 | ........ | 7 | 36.5 | 3 | 20.7 | 4 | 85.1 | 10 | 3 | 7 | 4 | 1 | 3 |
| Hillsborough | 21 | 6.9 | 11 | 4.3 | 10 | 20.0 | 161 | 52.8 | 118 | 46.3 | 43 | 86.0 | 108 | 66 | 42 | 52 | 44 | 8 |
| Holmes | 2 | 6.3 | 2 | 6.7 | 0 | ........ | 15 | 47.5 | 15 | 50.2 | 0 | ........ | 9 | 8 | 1 | 2 | 2 | 0 |
| Ind. River | 0 | ........ | 0 | ........ | 0 | ........ | 11 | 71.4 | 6 | 58.3 | 5 | 98.0 | 4 | 3 | 1 | 2 | 1 | 1 |
| Jackson | 3 | 4.0 | 0 | ........ | 3 | 11.9 | 33 | 44.1 | 21 | 42.4 | 12 | 47.4 | 33 | 12 | 21 | 9 | 9 | 0 |
| Jefferson | 4 | 15.9 | 1 | 14.9 | 3 | 16.2 | 13 | 51.6 | 2 | 29.9 | 11 | 59.5 | 9 | 2 | 7 | 1 | 0 | 1 |
| Lafayette | 0 | ........ | 0 | ........ | 0 | ........ | 4 | 41.7 | 4 | 44.0 | 0 | ........ | 1 | 1 | 0 | 2 | 2 | 0 |
| Lake | 6 | 11.9 | 4 | 11.2 | 2 | 13.5 | 38 | 75.4 | 17 | 47.8 | 21 | 141.9 | 18 | 3 | 15 | 11 | 8 | 3 |
| Lee | 0 | ........ | 0 | ........ | 0 | ........ | 24 | 69.0 | 17 | 61.4 | 7 | 98.6 | 15 | 8 | 7 | 9 | 5 | 4 |
| Leon | 5 | 7.7 | 1 | 3.5 | 4 | 10.8 | 40 | 61.3 | 11 | 38.7 | 29 | 78.6 | 26 | 6 | 20 | 9 | 1 | 8 |
| Levy | 1 | 3.4 | 0 | ........ | 1 | 10.2 | 20 | 67.1 | 11 | 55.0 | 9 | 91.8 | 12 | 3 | 9 | 3 | 2 | 1 |
| Liberty | 0 | ........ | 0 | ........ | 0 | ........ | 10 | 125.0 | 7 | 120.7 | 3 | 136.4 | 4 | 3 | 1 | 5 | 5 | 0 |
| Madison | 5 | 13.9 | 4 | 22.3 | 1 | 5.6 | 22 | 61.3 | 12 | 67.0 | 10 | 55.6 | 18 | 2 | 16 | 7 | 6 | 1 |
| Manatee | 2 | 4.2 | 0 | ........ | 2 | 12.0 | 20 | 41.9 | 9 | 29.0 | 11 | 65.9 | 18 | 2 | 16 | 3 | 2 | 1 |
| Marion | 5 | 9.1 | 2 | 6.7 | 3 | 11.8 | 39 | 70.7 | 19 | 63.8 | 20 | 78.7 | 23 | 6 | 17 | 9 | 4 | 5 |

---

†Except State Hospital.

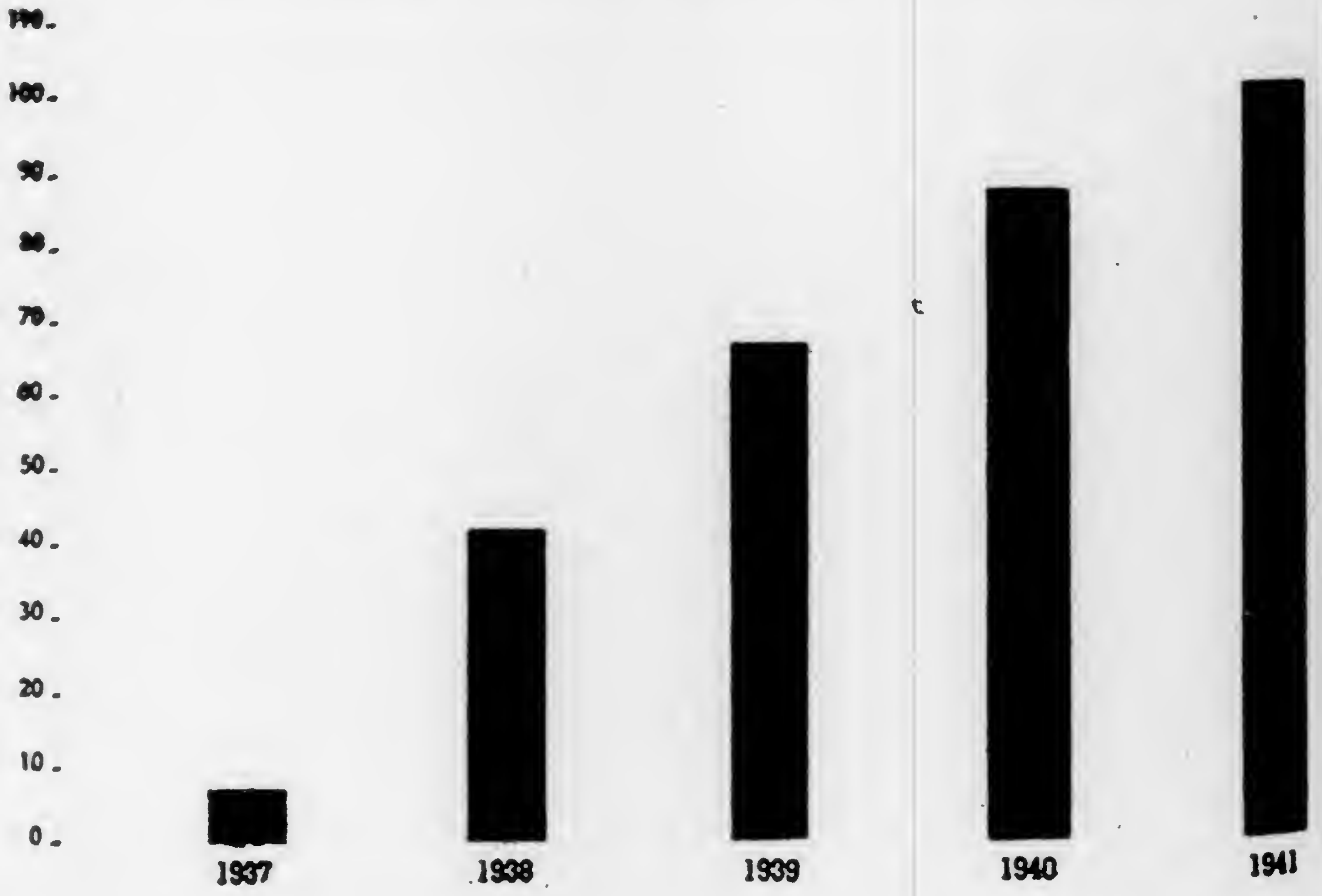
TABLE 1. — FLORIDA STATE BOARD OF HEALTH, FLORIDA RESIDENT MATERNAL AND INFANT DEATHS AND MORTALITY RATES BY COUNTIES, FOR CALENDER YEAR 1940*. — (Continued).

| | MATERNAL DEATHS PER 1,000 LIVE BIRTHS | | | | | | INFANT DEATHS PER 1,000 LIVE BIRTHS | | | | | | DEATHS CAUSED BY | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | | White | | Colored | | Total | | White | | Colored | | Stillbirths | | | Premature Births | | |
| | Deaths | Rate | Deaths | Rate | Deaths | Rate | Deaths | Rate | Deaths | Rate | Deaths | Rate | Total | White | Colored | Total | White | Colored |
| Martin | 1 | 9.6 | 0 | ........ | 1 | 25.0 | 4 | 38.5 | 1 | 15.6 | 3 | 75.0 | 6 | 2 | 4 | 2 | 1 | 1 |
| Monroe | 1 | 4.3 | 0 | ........ | 1 | 16.1 | 15 | 65.2 | 7 | 41.7 | 8 | 129.0 | 12 | 9 | 3 | 4 | 2 | 2 |
| Nassau | 1 | 4.2 | 0 | ........ | 1 | 11.2 | 14 | 58.3 | 11 | 72.8 | 3 | 33.7 | 6 | 2 | 4 | 4 | 3 | 1 |
| Okaloosa | 2 | 8.1 | 2 | 9.0 | 0 | ........ | 15 | 60.7 | 14 | 62.8 | 1 | 41.7 | 14 | 13 | 1 | 3 | 3 | 0 |
| Okeechobee | 1 | 21.3 | 1 | 23.8 | 0 | ........ | 0 | ........ | 0 | ........ | 0 | ........ | 1 | 1 | 0 | 0 | 0 | 0 |
| Orange | 6 | 5.3 | 5 | 5.9 | 1 | 3.5 | 40 | 35.3 | 17 | 20.1 | 23 | 80.7 | 55 | 30 | 25 | 11 | 6 | 5 |
| Osceola | 0 | ........ | 0 | ........ | 0 | ........ | 13 | 95.6 | 8 | 76.2 | 5 | 161.3 | 6 | 4 | 2 | 6 | 4 | 2 |
| Palm Beach | 7 | 6.1 | 1 | 1.4 | 6 | 13.1 | 58 | 50.2 | 22 | 31.6 | 36 | 78.4 | 55 | 19 | 36 | 21 | 8 | 13 |
| Pasco | 1 | 3.7 | 1 | 4.6 | 0 | ........ | 16 | 59.9 | 11 | 50.9 | 5 | 98.0 | 10 | 7 | 3 | 7 | 5 | 2 |
| Pinellas | 0 | ........ | 0 | ........ | 0 | ........ | 46 | 39.5 | 24 | 26.4 | 22 | 85.9 | 58 | 34 | 24 | 20 | 11 | 9 |
| Polk | 11 | 6.5 | 8 | 5.9 | 3 | 9.0 | 67 | 39.5 | 53 | 38.9 | 14 | 42.2 | 56 | 40 | 16 | 30 | 28 | 2 |
| Putnam | 0 | ........ | 0 | ........ | 0 | ........ | 16 | 48.5 | 7 | 32.7 | 9 | 77.6 | 26 | 8 | 18 | 6 | 3 | 3 |
| St. Johns | 5 | 14.7 | 2 | 9.5 | 3 | 23.3 | 23 | 67.6 | 9 | 42.7 | 14 | 108.5 | 15 | 3 | 12 | 7 | 3 | 4 |
| St. Lucie | 1 | 4.1 | 0 | ........ | 1 | 9.2 | 16 | 65.8 | 6 | 44.3 | 10 | 91.7 | 9 | 4 | 5 | 1 | 1 | 0 |
| Santa Rosa | 6 | 18.0 | 4 | 13.3 | 2 | 58.8 | 27 | 80.8 | 22 | 73.3 | 5 | 147.1 | 11 | 8 | 3 | 7 | 6 | 1 |
| Sarasota | 1 | 3.7 | 1 | 4.9 | 0 | ........ | 14 | 51.9 | 10 | 48.8 | 4 | 61.5 | 7 | 4 | 3 | 3 | 2 | 1 |
| Seminole | 1 | 2.7 | 0 | ........ | 1 | 5.3 | 20 | 53.8 | 4 | 21.6 | 16 | 85.6 | 8 | 1 | 7 | 4 | 3 | 1 |
| Sumter | 3 | 14.6 | 2 | 15.7 | 1 | 12.8 | 14 | 68.3 | 10 | 78.7 | 4 | 51.3 | 13 | 5 | 8 | 2 | 1 | 1 |
| Suwannee | 1 | 2.4 | 0 | ........ | 1 | 6.3 | 29 | 70.6 | 20 | 79.4 | 9 | 56.6 | 15 | 5 | 10 | 10 | 8 | 2 |
| Taylor | 1 | 4.0 | 1 | 5.2 | 0 | ........ | 7 | 27.8 | 6 | 31.1 | 1 | 16.9 | 13 | 7 | 6 | 3 | 3 | 0 |
| Union | 1 | 7.4 | 0 | ........ | 1 | 33.3 | 7 | 51.5 | 6 | 56.6 | 1 | 33.3 | 2 | 1 | 1 | 3 | 2 | 1 |
| Volusia | 3 | 3.8 | 2 | 3.7 | 1 | 4.0 | 40 | 50.5 | 22 | 40.7 | 18 | 71.4 | 31 | 13 | 18 | 13 | 13 | 0 |
| Wakulla | 0 | ........ | 0 | ........ | 0 | ........ | 4 | 36.4 | 1 | 19.2 | 3 | 51.7 | 12 | 8 | 4 | 0 | 0 | 0 |
| Walton | 0 | ........ | 0 | ........ | 0 | ........ | 19 | 73.1 | 16 | 71.4 | 3 | 83.3 | 15 | 13 | 2 | 3 | 1 | 2 |
| Washington | 5 | 21.0 | 5 | 27.8 | 0 | ........ | 11 | 46.2 | 6 | 33.3 | 5 | 86.2 | 15 | 11 | 4 | 4 | 2 | 2 |

The 1939 session of the Legislature enacted a law requiring the installation of one per cent silver nitrate solution or other approved prophylactic into the eyes of all newborn infants within one hour after birth and the certification of the instillation on standard birth certificates. The Act also required the State Board of Health to notify physicians, midwives, and others authorized to practice obstetrics, of the enactment of this law. The Bureau of Maternal and Child Health issued bulletins for this purpose. These bulletins listed the prophylactics and the method of installation approved by the State Board of Health.

Regulations regarding the licensing of midwives and the practice of midwifery were prepared for approval of the Attorney General and the State Board of Health and for incorporation in the State Sanitary Code. These regulations will enable the State Board of Health to exercise a greater degree of supervision over the practice of midwifery as penalties are provided for violation of the Code. Under the new regulations, midwives are not required to pay a fee for license or registration. It is interesting to note that the estimated number of midwives known to be practicing without licensing and registering has gradually decreased. (See Graph 1).

**GRAPH 1. ESTIMATED NUMBER OF MIDWIVES, PRACTICING WITHOUT LICENSING AND REGISTERING, BY CALENDAR YEARS, 1936 - 1941 INCLUSIVE**



Midwife institutes and field supervision conducted by the Nurse-midwife Supervisor and Nurse-Midwife Teacher have been continued throughout the year. Arrangements were made for three Negro nurses with public health training to be sent to Tuskegee Institute for midwife training.

Work was begun on a revision of educational material and teaching leaflets for general distribution regarding maternity care and the care of infants.

A complete inventory of all Maternal and Child Health equipment and supplies in local health units was made and preparation begun for the purchase of such equipment as was required to carry on a satisfactory program.

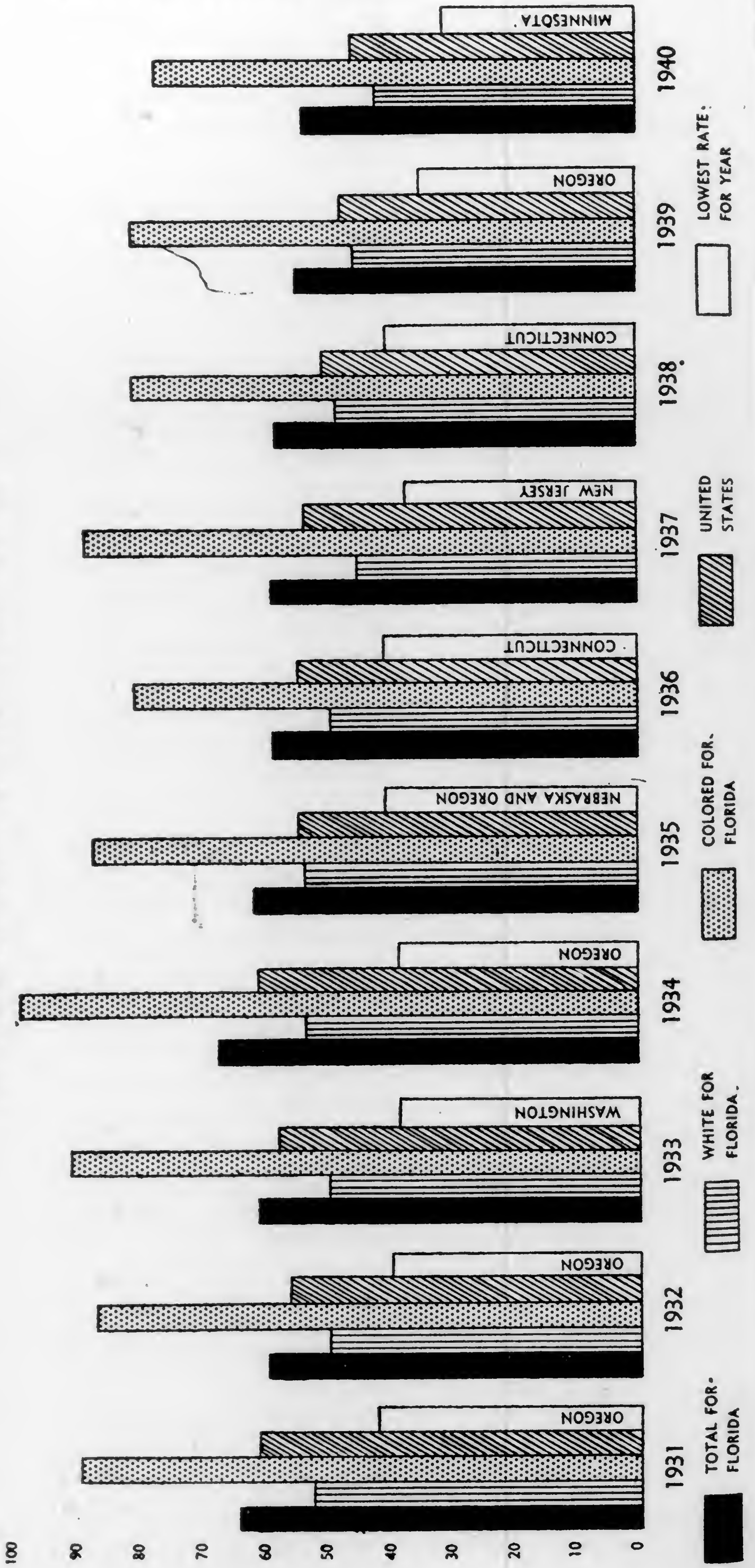
An outline was prepared for the use of local health officers in making plans for maternal and child health services for the coming year.

Surveys of the nursing services provided to mothers and children by several local health units were made by the Maternal and Child Health Nurse Consultant.

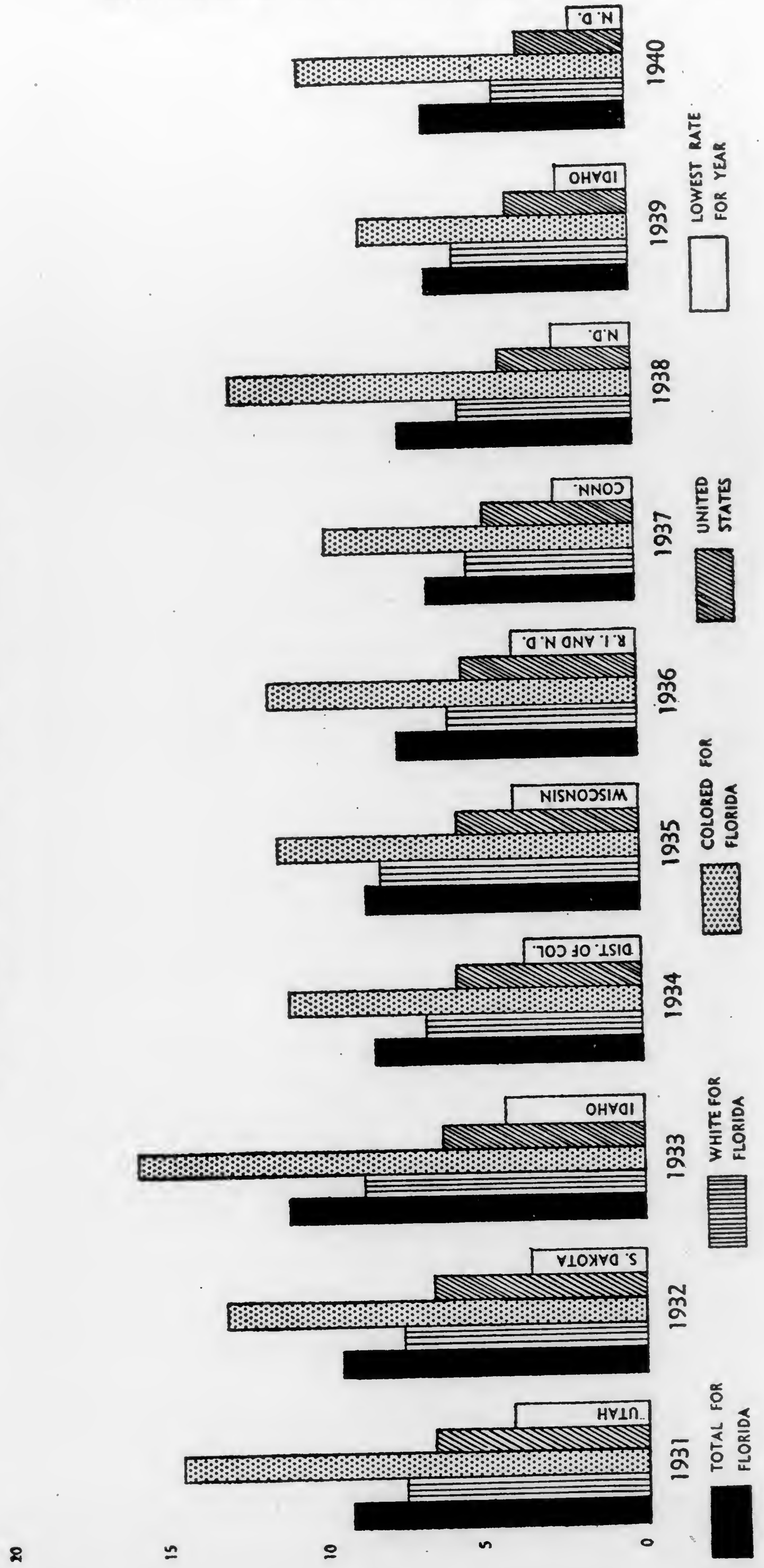
An analysis of infant and maternal mortality rates for Florida and the United States for the ten-year period 1931 to 1940, inclusive, showing the relative rates for white and Negro was made with the assistance of the Bureau of Vital Statistics. Graphs comparing these rates with the state having the lowest record for each year (1931-1940) were prepared with the assistance of the Bureau of Health Education. These charts and graphs were incorporated in a pamphlet with a list of principal causes of the high infant and maternal mortality rates in Florida and suggestions for lowering the mortality in these groups. (See Table 1 and Graphs 2 and 3). This pamphlet was given wide distribution. Another pamphlet, containing suggested ways to improve the health of children and families as a contribution to national defense, was published for general distribution.

Plans were made for an intensive Maternal and Child Health educational program which will include hookworm control through the use of a trailer unit purchased with funds obtained from the Children's Bureau, U. S. Department of Labor. This trailer is being equipped especially for this purpose. The educational program will include studies, demonstrations, and research in the various phases of the Maternal and Child Health program. A study of the incidence of hookworm infection in Florida by years, from 1923 to 1940, indicates that there has been no material change in the percentage of persons with this infection during that period. Graph 4, based on examinations made at the State Board of Health laboratories, shows the rate of infection during this period. Intestinal parasitic infections and poor nutrition are serious problems affecting the

GRAPH 2. INFANT MORTALITY RATES
Per 1,000 Live Births for 1931 - 1940 Inclusive



GRAPH 3. MATERNAL MORTALITY RATES
Per 1,000 Live-Births 1931-1940 Inclusive



health of mothers and children in the state, especially in the rural areas. Special attention will be given to these problems by means of the trailer unit.

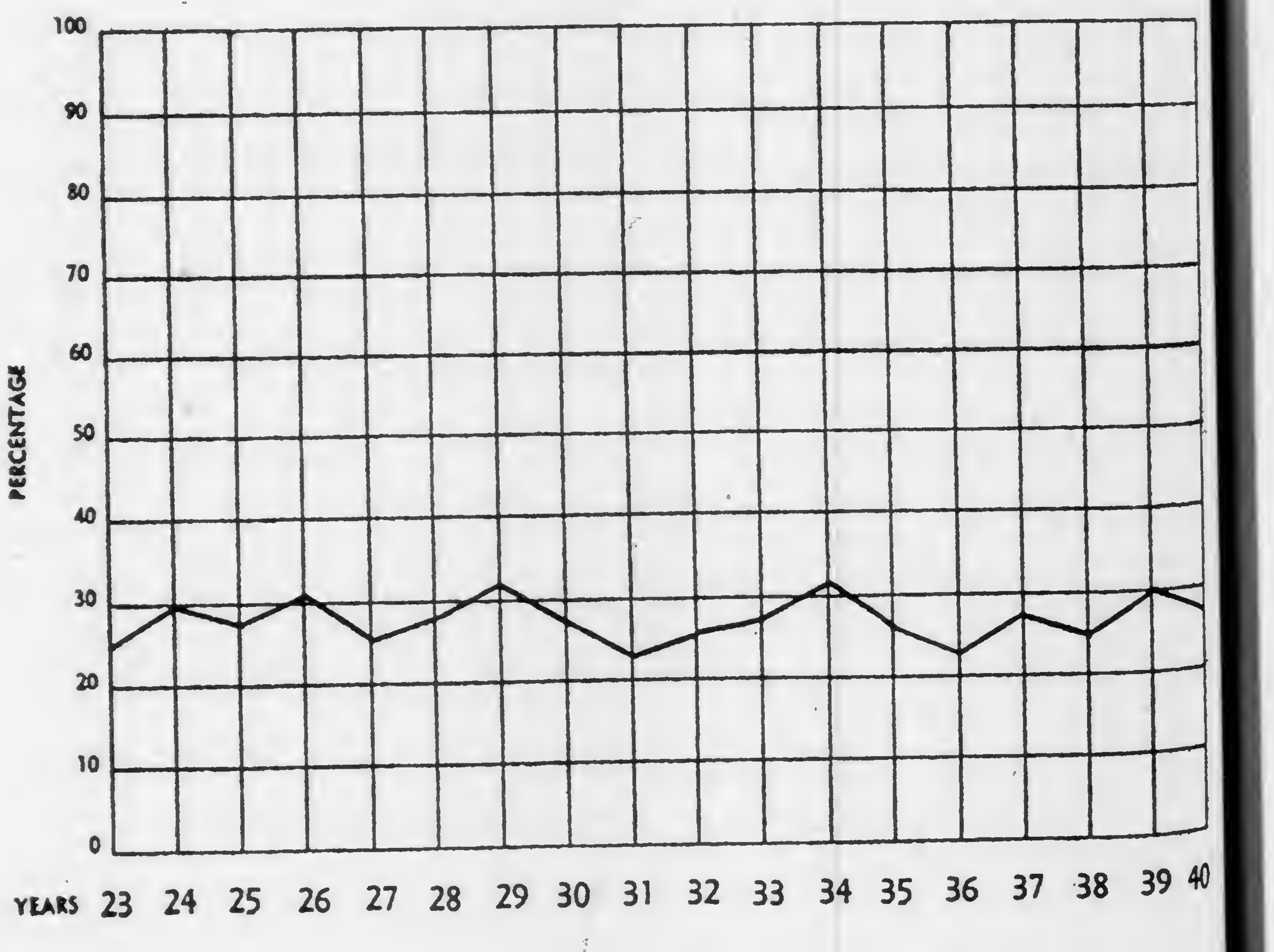
The number of part-time clinicians and dentists employed by local health units has increased during the year despite the fact that large numbers from the professions have joined the military forces.

The number of clinics for maternity patients and infants held at least once a month by local health units has also increased. (See Graph 5).

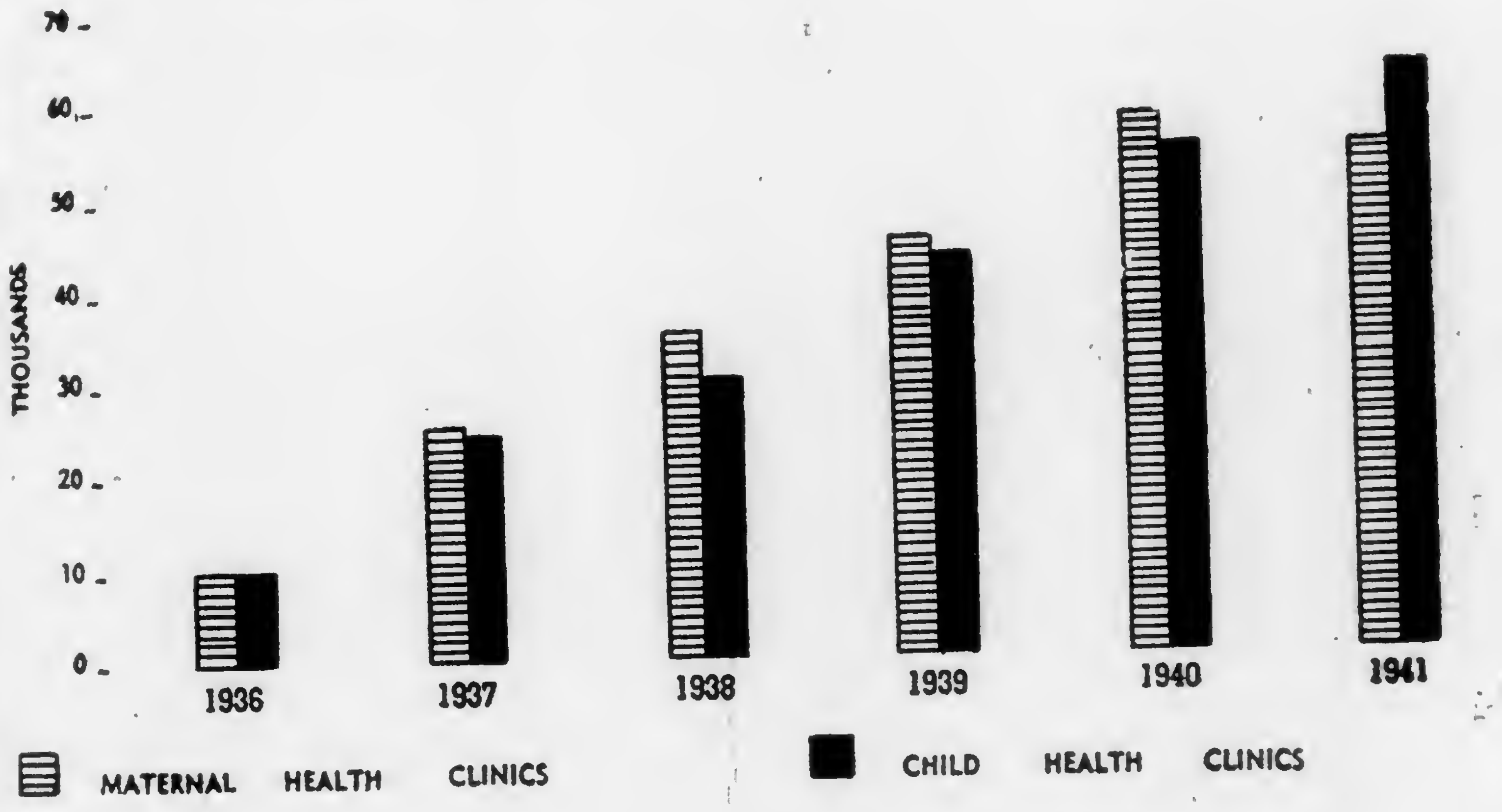
Table 2, giving the combined activity reports for maternal and child health services for the years 1937 to 1941, inclusive, indicates the volume of service provided through Maternal and Child Health funds for these years.

## GRAPH 4. SHOWING THE PERCENTAGE OF HOOKWORM BY CALENDAR YEARS 1923-1940 INCLUSIVE

### Based on Examinations Made By STATE BOARD OF HEALTH LABORATORIES



## GRAPH 5. CLINICS HELD AT LEAST ONCE A MONTH BY LOCAL HEALTH UNITS IN MATERNAL AND CHILD HEALTH PROGRAM OF STATE BOARD OF HEALTH, BY CALENDAR YEARS, 1936 - 1941 INCLUSIVE



During the year the program of the Bureau was presented to a number of organizations and agencies through public addresses made by members of the staff.

The Graduate Course of the Florida Medical Association and district meetings of the Association were attended. A number of meeings were held with members of the Maternal Welfare and Child Health Committees of the Association.

The following physicians were given scholarships to the Southern Pediatric Seminar at Saluda, North Carolina: Local Health Officers L. J. Graves, J. B. Parramore, R. J. Lamb, Leland H. Dame, and J. O. Barfield; Clinicians F. V. Chappell, R. D. Harris, and Ludo von Meysenbug; and the Bureau director, R. C. Hood.

The Nurse-Midwife Supervisor and the Nurse-Midwife Teacher were sent to Tuskegee Institute for a short period of observation of a midwife training course being organized there.

TABLE 2.—Maternal and Child Health Services Administered or Supervised by State Health Agency—Activities Reports 1937-1941.

| | 1937* | 1938* | 1939* | 1940 | 1941 |
|---|---|---|---|---|---|
| **Communicable-Disease Control** | | | | | |
| Immunization (persons immunized) | | | | | |
| Smallpox | 20,945 | 26,716 | 23,187 | 18,093 | 14,011 |
| Diphtheria, under 1 year | 7,874 | 2,854 | 3,020 | 1,508 | 2,563 |
| Diphtheria, 1 through 4 years | 6,820 | 9,340 | 8,652 | 4,133 | 6,294 |
| Diphtheria, 5 years and over | 11,053 | 13,914 | 16,224 | 6,690 | 7,763 |
| **Maternity Service** | | | | | |
| Cases admitted to antepartum medical service | 2,541 | 3,813 | 4,594 | 3,858 | 5,485 |
| Cases admitted to antepartum nursing service | 5,177 | 9,793 | 8,433 | 5,228 | 6,617 |
| Visits by antepartum cases to medical conferences | 8,485 | 9,976 | 11,152 | 13,153 | 18,842 |
| Field and office nursing visits to and by antepartum cases | 20,641 | 22,841 | 23,868 | 13,526 | 16,703 |
| Cases given nursing service at delivery | 131 | 471 | 632 | 119 | 59 |
| Cases given postpartum medical examination | 880 | 752 | 936 | 879 | 1,722 |
| Cases admitted to postpartum nursing service | 3,326 | 4,634 | 5,056 | 3,141 | 3,985 |
| Nursing visits to postpartum cases | 9,130 | 10,168 | 10,884 | 6,948 | 7,355 |
| Visits for midwife supervision | 4,180 | ............ | 2,382 | 1,804 | 1,395 |
| Attendance at maternity classes | 1,549 | 3,301 | 3,980 | 1,127 | 448 |
| **Infant Hygiene** | | | | | |
| Individuals admitted to medical service | 2,066 | 3,219 | 3,373 | 2,024 | 3,176 |
| Individuals admitted to nursing service | 7,663 | 5,494 | 5,738 | 4,717 | 6,173 |
| Visits to medical conferences | 2,623 | 3,322 | 4,314 | 4,581 | 6,527 |
| Field and office nursing visits | 13,793 | 15,519 | 16,340 | 12,707 | 18,133 |
| **Preschool Hygiene** | | | | | |
| Individuals admitted to medical service | 2,871 | 4,629 | 5,457 | 2,733 | 5,339 |
| Individuals admitted to nursing service | 12,922 | 9,294 | 9,762 | 5,439 | 6,213 |
| Visits to medical conferences | 4,891 | 6,752 | 6,040 | 6,061 | 9,961 |
| Field and office nursing visits | 16,507 | 16,947 | 17,562 | 14,343 | 18,308 |
| Inspections by dentists or dental hygienists | 503 | 1,197 | 1,795 | 313 | 267 |
| Attendance at infant and preschool classes | 267 | 1,897 | 2,651 | 259 | 245 |
| **School Hygiene** | | | | | |
| Examinations by physicians (includes item below) | 41,789 | 33,084 | 30,634 | 42,285 | 33,394 |
| Examinations by physicians with parents present (included above) | 1,778 | 3,067 | 3,132 | 3,566 | 2,186 |
| Field nursing visits | 19,550 | 41,853 | 28,481 | 13,094 | 12,287 |
| Office nursing visits | 5,352 | 13,066 | 16,186 | 10,422 | 12,718 |
| Inspections by dentists or dental hygienists | 25,735 | 32,091 | 105,761 | 17,311 | 20,774 |
| **Other Services** Dental Hygiene— | | | | | |
| Fillings, all kinds | ............ | ............ | 11,847 | 17,878 | 13,200 |
| Prophylaxis | ............ | ............ | 1,819 | 2,922 | 4,845 |
| Extractions | ............ | ............ | 1,901 | 3,543 | 4,632 |
| Treatment | ............ | ............ | 2,828 | 4,805 | 2,943 |

*N.B. Prior to the calendar year 1940,, the reports included Maternal and Child Health services administered by other than the State Board of Health.

# DENTAL HEALTH

Lloyd N. Harlow, D.D.S., *Director*

This report covers the activities of the Bureau of Dental Health of the Florida State Board of Health for the calendar year of 1941. Only a small portion of the planned program has been carried out (because of insufficient funds and lack of personnel) yet an appreciable amount of work has been done. The response of the general public, as a whole, has been pleasing and indicative of an awakening consciousness on the part of the people to the fact that dental health is essential to general health.

Among the out-of-state visitors to the Bureau of Dental Health during the year were Dr. Walter J. Pelton, Passed Assistant Dental Surgeon, Consultant to State Health Authorities, of the United States Public Health Service, who spent a day last January and a day in December with the director going over records and making suggestions on program improvement, and Dr. Bion East, D.D.S., of DeLamar Institute of Public Health, Columbia University, who came especially for a conference relative to Florida's dental health program, and to ask for the cooperation of the Bureau of Dental Health with him in securing data concerning the eruption of deciduous teeth. To date the Bureau has been unable to furnish Dr. East with the information because of lack of personnel for collecting and compiling the necessary details.

A number of conferences were held during the year with the state director of the Florida Health Program of the National Youth Administration. Assistance was given in procedure methods for the dental examination program conducted by the organization, and examination forms were prepared for use in making the examinations. The members of the dental profession throughout the state were contacted and persuaded to aid with the project. Valuable data, which will be of use in compiling information on the incidence of dental caries in certain localities of the state, have been furnished this Bureau by the National Youth Administration as a result of its dental examination program.

Conferences were held with the directors of the various county health departments relative to their dental health programs and to the assistance available to them through this Bureau's educational program and dental mobile unit. In each instance, the local dentists were interviewed and acquainted with the dental program inaugurated or to be inaugurated and their approval of the program obtained. At all times, the dental profession has encouraged the work and given assistance whenever possible.

County dental corrective programs were established in Jackson and

Lake Counties. In Jackson County, the County School Board assisted by matching the Maternal and Child Health Funds allotted by the State Board of Health.

Cooperating with the dental profession of the state, this Bureau secured the services of Dr. Walter J. Pelton of the United States Public Health Service to present clinics and lectures on children's dentistry at the five district dental societies' meetings in January. Also, other clinicians, Doctors George W. Matthews, R. E. Sturdevant, Ralph Jarrett, and M. S. Jenkins, were obtained for four of the districts (one each) to give clinics and lectures on preventive dentistry. Florida is the first state to experiment in presenting public health dentistry at district meetings. Both the director and assistant director attended all meetings and assisted Dr. Pelton in presenting his clinics. The director gave talks at each district meeting and at two dental hygienists' annual meetings. These refresher courses in children's and preventive dentistry proved to be a very satisfactory method of interesting the dentists in public health dentistry. Additional refresher courses for the dental profession had been planned but the request for funds to obtain clinicians was not approved by the Bureau of Maternal and Child Health.

All local and state public health and dental society meetings were attended whenever possible. The annual meetings of the American Public Health Dentists, American Society of Dentistry for Children, and the American Dental Association in Houston, Texas, were attended by the director and the assistant director.

In cooperation with the United States Public Health Service, the director and assistant director accompanied Doctors Dean, Arnold, and McClure to Key West and assisted them in making a study of diet and water supply in relation to dental caries. The twelve, thirteen and fourteen year age groups with a history of continuous residence in Key West were used. Saliva analyses and acidophilus counts were made on these children and thorough dental examinations given them. Dietary habits were studied and both chemical and bacteriological analyses made. Key West was selected for the study because it is the only place in the United States where rain water is used for drinking purposes. From a cursory comparison of the Key West information with his other data, Dr. Dean thinks that the children in Key West have a higher percentage of caries than children in other places in the same age groups who have lived their entire lives in the same localities.

This Bureau began a comparative study in Manatee and Nassau Counties on the twelve, thirteen and fourteen-year age groups with a history of continuous residence since birth in these counties. Manatee and Nassau Counties were chosen because their economic status was thought to be about the same as that of Monroe County and because of their water supplies containing fluorine. The study was to have been carried into other localities in Florida where the water contains various percentages of fluorine. However, the request for personnel and supplies needed to conduct the program was not approved and it became necessary to discontinue the study. Later, at Dr. Dean's request, water samples from Jacksonville, Tampa, Bradenton, Manatee, and Palmetto were collected and shipped to him for fluorine testing.

Questionnaires and dental health material were prepared and used in presenting dental health to teachers, high school students, and lay groups. An effort was made to assist elementary school teachers in correlating dental health teaching with their regular subjects. The services of Miss Fannie Shaw, health educator at the Florida State College for Women, Tallahassee, and the senior class in health education were secured to aid in the preparation of suggestions for integrating dental health teaching in the schools. When completed, the material will be compiled in pamphlet form and distributed to every elementary school teacher in the public schools of Florida. A conference was held with Mr. Joe Hall, State Consultant in Health Education, and approval of the State Department of Education secured on the Bureau's method of presenting dental health facts to school children, teachers, and the public in general.

At the request of Dr. Sarah Parker White, Instructor at the Florida State College for Women, Tallahassee, a week's lecture course on dental health was given in the spring and another in the fall to the students in the Department of Education. The true-false statement quiz was used very effectively. When these tests are given, the blanks are first filled out by the study group, then the correct answers are given by the lecturer and discussed in detail. The audience is encouraged to ask questions and troublesome facts are explained more explicitly.

This method of presenting dental health was used in addressing a sociology class at the University of Florida; also, for high school students, teachers, parent-teacher associations and other civic organizations during the year. It never failed to arouse and hold the interest of the various groups and the responses were always good. It is hoped to have this plan of dental health education in all the colleges and schools over the state within another year or two.

A supply of the new brochures, "Your Child's Teeth," has been purchased and the booklets are being distributed to school teachers throughout the state. The booklet presents in an interesting manner the most important dental health facts that every teacher should know thoroughly and be able to explain to the children in her charge. The Bureau's dental health information letters for prenatal and postnatal cases were distributed by the Bureau of Public Health Nursing.

In connection with the Office of Government Reports of the United States Public Health Service, the director made two fifteen-minute radio broadcasts — one in Jacksonville and one in Tallahassee. This same talk was scheduled for Hollywood, West Palm Beach, Miami, and Orlando, but was cancelled by the radio stations at the time of the Pearl Harbor attack and declaration of war by the United States. Arrangements are being made for delivery at later dates.

During the first six months of 1941, the Bureau's dental health film, "Billy's Trip to Health Land," was presented to over 25,500 elementary school children in ten different counties. This represents ninety-eight showings in eighty-four different schools. In addition, the film was presented to a large number of adult groups. A considerable amount of time and work has been spent in revising this picture in order to shorten it and make it more acceptable to primary children. The new version is not yet complete.

Close cooperation is being maintained with the Procurement and Assignment Agency and the Selective Service Board at Washington, D. C. The Procurement and Assignment Agency has been assisted by procuring the questionnaires of the dentists throughout the state so that they might be classified according to their various capabilities. The classifications are being divided into those qualified for military duty and those capable of rendering civilian service. The Selective Service Board has a proposed rehabilitation program for rejected draftees whereby the dentists not called for military duty can render service to these rejectees and thus fit them for active military service. Every assistance possible is being given to the proper selection of dentists to conduct this program as soon as the appropriation is allotted to the state.

Although the work of equipping the dental trailer was begun by the National Youth Administration work shop last year, it was June of 1941 before the trailer was ready to be taken into the field. The dental trailer is used only in those counties not having facilities for receiving dental services. Special attention is given preschool children in these dental clinics; however, maternal cases and school children are included insofar as time will permit. Following is a summary of the services rendered by the dental mobile unit:

| | |
|---|---|
| Counties visited | 9 |
| Patients | 878 |
| Extractions | 719 |
| Fillings, cement | 109 |
| Fillings, amalgam | 466 |
| Treatments, $AgNO^3$ | 655 |
| Treatments, other | 14 |
| Prophylaxis | 15 |

# PUBLIC HEALTH NURSING

RUTH METTINGER, R.N., *Director*

Rapid progress has been made in the field of public health nursing. During the year 1941 an increase of 29 nurses have been employed, 19 of these have been placed in county health units already in operation. This was made possible through an increased appropriation to the county health units.

It is an accepted principle that special training is needed for nurses entering the field of public health. Many of the nurses already employed wishing to take the course and unable to finance it themselves, were given scholarships through Social Security Funds. Three were sent to Peabody College, one to The University of Pennsylvania, five to College of William and Mary, and five to the University of St. Louis. The latter took a special course in venereal diseases. Many nurses who had previously been given scholarships of one or two quarters, took a six-weeks' course during the summer hoping eventually to complete the full course in public health.

Due to the increase of clinics the public health nurses have spent much of their time in this service to the neglect of the field work. Through Maternal and Child Health and Venereal Disease Funds clinic nurses have been employed in the units. An effort has been made to employ nurses who are eligible for scholarships and can matriculate at the universities offering the approved public health nursing program. This service gives the health officer and the supervising nurse an opportunity of learning whether or not the nurse has an aptitude for public health nursing, and also gives the nurse an appreciation of the clinic service in the community health program.

In two of the county health units trainees have been placed. These work from three to six months before being sent to school.

The opening of Camp Blanding was the first opportunity observed for the need of nursing service among the civilian people around a military camp. Nurses from the adjoining counties were assigned two days a week to this area who assisted with the immunization program visiting prenatals, infants and preschools.

Upon invitation of the American Red Cross a very interesting Institute on Disaster Relief was attended in New Orleans. Representatives from the state departments of health from Alabama, Mississippi, Louisiana and Florida were in attendance. Medical and nursing programs as related to disaster hazards in the community, a division of responsibility in disaster, and the disaster set-up with other agencies in the community were the main topics of discussion.

As all students attending William and Mary College are given five weeks' field practice at Anne Arundel County Health Unit, the director was invited to observe this unit, which she did two days in October en route to the American Public Health Association meeting in Atlantic City.

Through the United States Public Health Service, five lend-lease nurses were assigned to Florida with the understanding they would be placed in or near defense areas. Two were placed in Okaloosa County, two in Santa Rosa County, and one in Orange County.

In connection with the defense work, three classes were given to the Red Cross staff assistants. The director also attended two state nutrition meetings on National Defense as well as a Physical Fitness Conference.

When visiting county health units the director interviewed married and retired nurses for the purpose of interesting them in teaching Home Nursing to adults. The demand for these classes has increased considerably and this has relieved the unit nurses to carry on their regular work.

Consultation services were given every health officer on problems which relate to the nursing services and their development to the best interest of the community.

Nursing consultants from the Children's Bureau and the U. S. Public Health Service visited the state and accompanied the director to several units; they also attended the Florida State Nurses' Convention which was held in Hollywood the first of November.

The midwife nursing consultant conducted fifteen midwife institutes of one day each. This was done as a means of teaching the unit nurses this phase of the work. Following these institutes, the unit nurses returned the demonstration to the midwife consultant to give them even more assurance when teaching the midwives at their regular monthly meetings. Other demonstrations were given on special phases of this program when nurses seemed unfamiliar with that particular part of the work.

Several investigations were made on midwives in unorganized counties.

The colored nurse midwife concentrated on five county health units, her stay varying from one to four months. During her visits classes were held with the midwives; practical demonstrations and midwife participation were given followed by instructive visits with the individual midwives on antepartum, intrapartum and postpartum cases. While observing the midwives on antepartum, postpartum cases and actual deliveries

of their patients in the normal environment, she was given a better idea as to what each individual midwife was capable of performing and was afforded an opportunity for giving constructive teaching.

The tuberculosis nursing consultant visited twenty-one county health units. She acquainted the nursing service with the procedures to be followed regarding the x-ray mobile unit visiting the county and also conducted classes in the study of tuberculosis. These classes covered from ten to fourteen hours, and time was allowed for discussion of problems.

In six of the counties visited surveys relating to tuberculosis were made.

All suspects or tuberculous cases found through the Selective Service Board—in unorganized counties—were investigated by the state consultant and arrangements made for medical service and follow-up of the patient. Thirteen other cases reported to the State Board of Health were investigated by the consultant.

Studies of the nursing service with emphasis on the maternal and child health program were made in thirteen county health units by the maternal and child health nursing consultant.

Education was stressed but as time was limited, study material which consisted of five units of true-false and completion questions in obstetrics and five units in pediatrics were left with the nurses requesting they be completed and returned to the consultant for grading. A book of the grades of each nurse is kept in the Bureau of Public Health Nursing. The consultant outlined teaching leaflets to be used by the nurses as a quick reference relative to the teaching content for the home.

The nursing consultant for venereal disease control resigned to accept a position with the City-County Venereal Disease Clinic, Jacksonville. A nursing supervisor of one of the county health units was promoted to this position. She was sent to the University of St. Louis for the special course in venereal diseases.

The state consultants visit the unit nurses in the field upon the request of the supervising nurse and assist in applying the speciality to the generalized program. Each consultant makes reports and recommendations for strengthening the unit nursing service. All reports are made in the Bureau of Public Health Nursing and sent to the director of the bureau of the speciality to which she is attached as well as to the state consultants and county health unit.

# LOCAL HEALTH SERVICE

A. W. NEWITT, M.D., *Director*

During the year the following counties organized health units: Santa Rosa, Okaloosa, Walton, Bradford, Clay, Flagler, and Seminole.

Santa Rosa is under the direction of the health officer of Escambia county, but otherwise it has its own staff, offices, etc. Okaloosa and Walton counties joined to make a bi-county unit under the same health officer, but again each county retains its own identity in staff, offices, etc. Bradford and Clay counties in which Camp Blanding is located were organized as a bi-county unit expecially because of the camp. The health officer is an officer of the United States Public Health Service. Flagler county was organized under the part-time direction of a physician from the central office. Seminole county has an orthodox type of health unit with a full-time staff.

At the end of the year there were thirty-two counties with organized public health services. This means that 47.7 per cent of the sixty-seven counties in the state were organized—a gain of nine per cent over the previous year. While it is desirable to have full-time health service for all counties of the state, there are several now organized and a larger number unorganized which have too small a population and too little local funds to justify an independent single county unit. In a few instances even a two or three county combination would not be justifiable, not only because of lack of funds, but because of the large area to be covered by the staff. In such instances it is hoped that urgent services may be made available to such areas according to a modified plan of operation.

Table 1 shows the list of health units with the distribution of funds from the several sources. It will be noted that in many instances the contribution from local sources is considerably less than fifty per cent of the total budget. It is desirable for many reasons that local funds represent at least half of the total appropriation. On the other hand the annual per capita cost of the units as shown in this table varies considerably. It is generally accepted that adequate public health service cannot be provided at much less than one dollar per capita. Some of the units quite obviously do not have adequate facilities; and others, particularly rural counties, have budgets which considerably exceed the one dollar per capita standard. This does not mean that the staff of these units is more than needed. It simply reflects what it costs to give minimum service to counties of small populations.

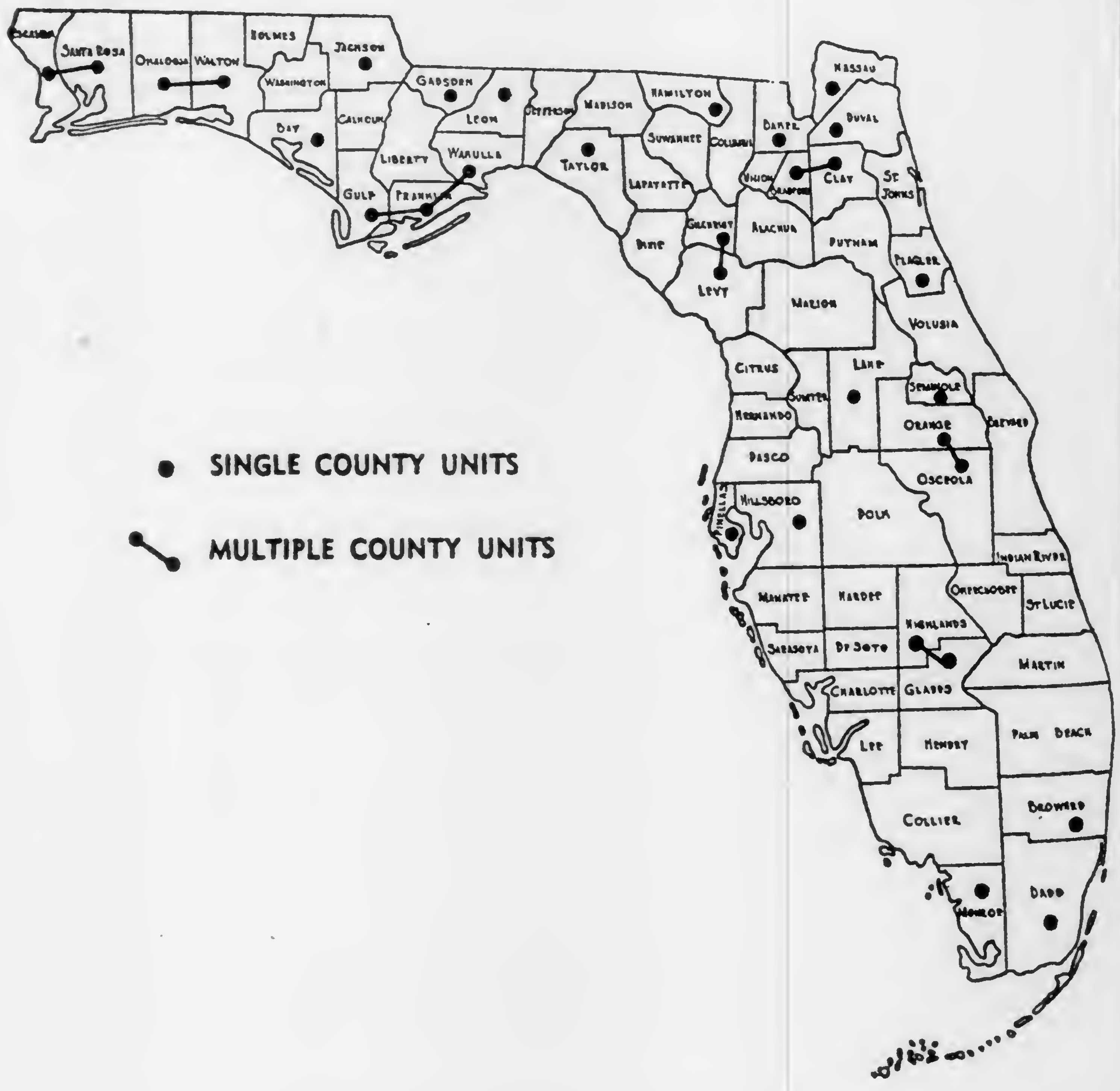
TABLE 1. — SUMMARY OF COUNTY HEALTH UNIT BUDGETS

| Description | Per Capita | Total Budgeted | SOURCE OF FUNDS | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | State | County | U. S. P. H. S. | | State Venereal Disease | Children's Bureau | Other Agencies | |
| | | | | | Title VI | Venereal Disease | | | Name | Amount |
| Baker | 1.46 | 9,560 | 3,760 | 4,000 | 1,500 | 100 | | 200 | | |
| Bay | .89 | 18,390 | 3,280 | 7,550 | 1,260 | 2,300 | 800 | 3,200 | | |
| Broward | .55 | 21,965 | 5,955 | 8,400 | 1,200 | 2,490 | 900 | 3,020 | | |
| Bradford-Clay | .98 | 14880 | 5,200 | 2,580 | 2,100 | 1,650 | 750 | 2,600 | H.O. USPHS | DIRECT |
| Dade | .37 | 35,525 | 6,000 | 21,825 | 3,000 | 1,500 | 700 | 2,500 | 15,000 Fed.<br>15,000 City | Mosquito<br>Control |
| Duval | .86 | 31,880 | 6,180 | 17,200 | 2,100 | | | 6,400 | USPHS | 3,600 |
| Escambia | .55 | 42,174 | 4,780 | 15,218 | 2,116 | 2,600 | 1,540 | 11,240 | WPA | 1,080 |
| | 2.48 | | | | | | | | | |
| Flagler | 1.31 | 7,462 | 2,922 | 2,790 | 500 | 570 | 80 | 600 | | |
| Franklin-Gulf-Wakulla | .65 | 24,110 | 5,980 | 8,800 | 2,400 | 2,480 | 950 | 3,500 | | |
| Gadsden | 1.09 | 20,375 | 4,250 | 6,450 | 1,980 | 1,175 | 1,370 | 5,200 | | |
| Hamilton | 1.11 | 10,690 | 5,520 | 3,000 | 1,360 | 150 | 60 | 600 | | |
| Highlands-Glades | .59 | 13,360 | 4,060 | 4,800 | 1,800 | 600 | | 2,100 | | |
| Hillsborough | .52 | 42,370 | 10,140 | 14,000 | 5,100 | 5,430 | 2,300 | 5,400 | | |
| Jackson | | 17,760 | 3,840 | 5,300 | 1,800 | 2,300 | 950 | 3,570 | | |
| Lake | .75 | 20,400 | 3,880 | 8,500 | 1,500 | 2,600 | 900 | 3,020 | | |
| Leon | .83 | 26,260 | 4,300 | 13,580 | 1,680 | 2,000 | 1,020 | 3,680 | | |
| Levy-Gilchrist | .95 | 15,880 | 6,580 | 6,400 | 2,100 | 200 | 300 | 300 | | |
| Monroe | .67 | 9,500 | 5,700 | 2,100 | 1,500 | 200 | | | | |
| Nassau | 1.27 | 13,700 | 4,200 | 5,100 | 1,380 | 600 | | 2,420 | | |
| Orange | .96 | 31,860 | 7,000 | 7,520 | 5,580 | 2,500 | 1,860 | 4,120 | Orlando | 3,280 |
| Osceola | .69 | 7,030 | 2,980 | 3,600 | | 300 | | 150 | | |
| Pinellas | 1.61 | 49,960 | 8,640 | 24,060 | 3,780 | 5,300 | 740 | 7,440 | | |
| Santa Rosa | .46 | 7,440 | 2,420 | 3,920 | | 500 | | 600 | | |
| Seminole | .59 | 10,435 | 3,660 | 5,375 | | 800 | | 600 | | |
| Taylor | 1.08 | 12,440 | 2,880 | 4,540 | 1,800 | | 1,000 | 2,220 | | |
| Walton-Okaloosa | .61 | 13,405 | 4,005 | 5,240 | | 650 | | 2,385 | USPHS DIRECT | 1,125 |
| Per Capita Distribution | | 528,811 | 128,062 | 211,848 | 47,536 | 38,995 | 16,220 | 77,065 | | 9,085 |
| Totals | | .73 | .18 | .29 | .07 | .05 | .02 | .11 | | .01 |

The rapid development of army and navy training bases placed a heavy burden on local and state health departments. The most acute public health problems arose with the unprecedented influx of construction workers and their families. Rapid installation of sanitary facilities became imperative, and it is gratifying indeed that the local health departments and the Bureau of Sanitary Engineering of the State Board of Health were able to cope with the situation.

With the arrival of thousands of service men came the inevitable influx of prostitutes and other camp followers. The venereal disease problem became one of first importance. However, generous grants of federal money have made possible the inauguration of control programs which in spite of scarcity of trained personnel began to show definite results at the close of the year.

MAP 1. ORGANIZED COUNTY HEALTH DEPARTMENTS



Year after year many of the counties have been delinquent, often for several months, in their payments of their portion of the budget. This means of course that the salaries of personnel are not paid during the delinquency, and, of course, bills for supplies accumulate and accounts taken out in good faith have become past due. Such a situation is demoralizing to the personnel and the credit of these units has been seriously impaired. There is great need for legislation which would allow credit to be extended by the state to the counties pending the collection of taxes.

The demands of war services have created serious shortages of qualified personnel. Trained health officers are at a premium, and the scarcity of public health nurses and sanitarians is becoming more and more acute. Secretaries and clerks are able to get positions paying much higher salaries than are provided in the health department budgets. It seems imperative that substantial increases in salaries be provided for if we are not to be faced with serious depletion of our best qualified people. It is most difficult to recruit physicians, nurses and potential sanitary officers for training as health officers, public health nurses and sanitarians because the present salary levels are not sufficiently attractive. Another serious impediment in attracting health officers is the requirement that they must take and pass the state board examination for license to practice in Florida. Nearly every other state provides for reciprocity with the simple payment of a fee for registration.

The addition of a clerk consultant to the staff of the Bureau of Local Health Service has been very helpful. She has charge of the tabulation and summarization of the monthly activity reports and has greatly facilitated the work of the bureau in bringing about uniformity and standardization of reports and the keeping of accounts by the clerks of the local health departments.

Table 2 gives a summary of the activities of the health units during the year.

TABLE 2.—TABULATION OF ACTIVITIES OF FULL TIME COUNTY HEALTH UNITS IN FLORIDA, JANUARY-DECEMBER, 1941.

|  | BAKER | BAY | BROWARD | DADE | DUVAL | ESCAMBIA | FRANKLIN-GULF WAKULLA | GADSDEN | HAMILTON | GLADES-HIGHLANDS | HILLS-BOROUGH | JACKSON | LAKE | LEON |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COMMUNICABLE DISEASE CONTROL |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Admission to service | 19 | 102 | 160 | 193 | 59 | 99 | 55 | 30 | 8 | 21 | 193 | 11 | 88 | 21 |
| Consultations with physicians | 7 | 29 | 36 | 36 | 30 | 55 | 18 | 32 | 14 | 13 | 37 | 43 | 32 | 40 |
| Field visits | 188 | 141 | 438 | 423 | 348 | 609 | 563 | 212 | 30 | 377 | 327 | 25 | 215 | 78 |
| Smallpox immunizations | 297 | 1,017 | 1,514 | 1,841 | 1,164 | 818 | 739 | 1,072 | 411 | 237 | 409 | 116 | 216 | 504 |
| Diphtheria immunizations | 139 | 1,490 | 794 | 1,458 | 318 | 1,606 | 950 | 574 | 1,528 | 941 | 92 | 2,571 | 0 | 2,099 |
| Typhoid fever immunizations | 155 | 69 | 287 | 903 | 230 | 3,713 | 2,978 | 3,932 | 592 | 357 | 987 | 775 | 288 | 471 |
| VENEREAL DISEASE CONTROL |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Admissions to medical service | 141 | 371 | 930 | 662 | 5,724 | 1,274 | 655 | 514 | 631 | 532 | 544 | 1,058 | 748 | 1,135 |
| Clinic visits | 2,990 | 8,248 | 13,618 | 9,847 | 82,585 | 18,790 | 13,065 | 8,476 | 10,586 | 5,386 | 16,163 | 15,936 | 15,947 | 14,997 |
| Field visits | 146 | 827 | 290 | 1,223 | 772 | 1,556 | 436 | 326 | 483 | 544 | 862 | 909 | 1,066 | 2,198 |
| TUBERCULOSIS CONTROL |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Individuals admitted to medical service | 776 | 1,673 | 1,336 | 4,002 | 731 | 85 | 1,530 | 999 | 938 | 663 | 601 | 1,542 | 273 | 4,074 |
| Individuals admitted to nursing service | 24 | 9 | 82 | 229 | 28 | 94 | 121 | 60 | 16 | 46 | 168 | 36 | 199 | 119 |
| Clinic visits | 764 | 1,671 | 1,439 | 0 | 951 | 185 | 1,500 | 984 | 1,323 | 922 | 536 | 1,542 | 232 | 0 |
| Nursing visits | 124 | 110 | 330 | 594 | 313 | 549 | 126 | 324 | 77 | 175 | 808 | 117 | 777 | 784 |
| MATERNITY SERVICE |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Cases admitted to medical service | 125 | 148 | 257 | 782 | 301 | 930 | 333 | 577 | 63 | 84 | 937 | 277 | 177 | 645 |
| Cases admitted to nursing service | 205 | 330 | 385 | 1,341 | 542 | 1,240 | 588 | 690 | 88 | 165 | 1,267 | 342 | 463 | 855 |
| Visits by antepartum cases to Medical conferences | 258 | 466 | 488 | 1,676 | 574 | 3,099 | 578 | 993 | 78 | 145 | 3,317 | 522 | 385 | 1,953 |
| Nursing visits | 661 | 1,837 | 770 | 2,951 | 1,979 | 2,196 | 1,385 | 2,511 | 225 | 603 | 2,745 | 700 | 1,187 | 1,778 |
| INFANT HYGIENE |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Individuals admitted to medical service | 25 | 87 | 47 | 0 | 297 | 239 | 330 | 250 | 76 | 47 | 380 | 56 | 35 | 172 |
| Individuals admitted to nursing service | 113 | 195 | 83 | 772 | 455 | 608 | 367 | 539 | 49 | 99 | 571 | 147 | 246 | 397 |
| Visits to medical conferences | 43 | 208 | 43 | 0 | 863 | 548 | 383 | 448 | 39 | 44 | 622 | 106 | 42 | 402 |
| Nursing visits | 300 | 847 | 218 | 2,788 | 2,213 | 1,849 | 1,089 | 1,528 | 129 | 518 | 822 | 412 | 663 | 1,002 |
| PRESCHOOL HYGIENE |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Individuals admitted to medical service | 96 | 254 | 123 | 0 | 174 | 377 | 260 | 441 | 69 | 55 | 808 | 18 | 471 | 236 |
| Individuals admitted to nursing service | 213 | 118 | 115 | 94 | 873 | 63 | 350 | 1,066 | 38 | 161 | 749 | 24 | 520 | 232 |

TABLE 2.—TABULATION OF ACTIVITIES OF FULL TIME COUNTY HEALTH UNITS IN FLORIDA, JANUARY-DECEMBER, 1941. — Continued.

|  | LEVY-GILCHRIST | MONROE | NASSAU | ORANGE | OSCEOLA | PINELLAS | TAYLOR | CLAY-BRADFORD | FLAGLER | SANTA ROSA | SEMINOLE | WALTON-OKALOOSA | TOTALS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COMMUNICABLE DISEASE CONTROL |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Admission to service | 1,015 | 2 | 39 | 145 | 4 | 398 | 6 | 13 | 1 | 30 | 11 | 12 | 2,735 |
| Consultations with physicians | 8 | 36 | 7 | 14 | 10 | 16 | 3 | 3 | 1 | 3 | 0 | 0 | 513 |
| Field visits | 189 | 1,026 | 107 | 628 | 129 | 444 | 88 | 47 | 13 | 75 | 9 | 32 | 6,761 |
| Smallpox immunizations | 34 | 234 | 318 | 1,140 | 190 | 342 | 39 | 259 | 125 | 23 | 0 | 238 | 13,297 |
| Diphtheria immunizations | 474 | 381 | 882 | 1,166 | 246 | 748 | 466 | 200 | 84 | 117 | 41 | 60 | 15,664 |
| Typhoid fever immunizations | 1,040 | 545 | 442 | 486 | 6 | 160 | 213 | 231 | 118 | 115 | 86 | 112 | 23,052 |
| VENEREAL DISEASE CONTROL |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Admissions to medical service | 1,650 | 99 | 383 | 527 | 66 | 3,417 | 277 | 935 | 77 | 72 | 73 | 76 | 22,571 |
| Clinic visits | 6,568 | 1,255 | 5,695 | 18,479 | 1,435 | 19,218 | 5,443 | 6,542 | 1,261 | 766 | 287 | 939 | 314,702 |
| Field visits | 75 | 215 | 495 | 918 | 60 | 575 | 255 | 97 | 134 | 25 | 37 | 12 | 14,536 |
| TUBERCULOSIS CONTROL |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Individuals admitted to medical service | 5,190 | 278 | 1,716 | 2,051 | 942 | 2,252 | 3,830 | 375 | 0 | 2 | 4 | 6 | 35,869 |
| Individuals admitted to nursing service | 10 | 101 | 27 | 105 | 38 | 350 | 108 | 37 | 9 | 3 | 3 | 6 | 1,928 |
| Clinic visits | 55 | 280 | 1,691 | 15 | 0 | 450 | 2,421 | 373 | 2 | 0 | 4 | 0 | 17,340 |
| Nursing visits | 70 | 248 | 1,276 | 668 | 57 | 908 | 185 | 66 | 42 | 5 | 3 | 20 | 8,756 |
| MATERNITY SERVICE |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Cases admitted to medical service | 124 | 94 | 185 | 423 | 26 | 602 | 114 | 101 | 11 | 2 | 8 | 3 | 7,329 |
| Cases admitted to nursing service | 198 | 164 | 184 | 233 | 24 | 914 | 266 | 144 | 24 | 3 | 8 | 8 | 10,671 |
| Visits by antepartum cases to Medical conferences | 424 | 261 | 309 | 1,050 | 41 | 2,290 | 172 | 209 | 13 | 1 | 11 | 3 | 19,316 |
| Nursing visits | 450 | 588 | 614 | 882 | 67 | 1,135 | 846 | 371 | 47 | 26 | 29 | 10 | 26,593 |
| INFANT HYGIENE |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Individuals admitted to medical service | 22 | 79 | 176 | 420 | 11 | 623 | 93 | 20 | 8 | 0 | 2 | 2 | 3,497 |
| Individuals admitted to nursing service | 99 | 118 | 105 | 181 | 17 | 854 | 223 | 32 | 22 | 7 | 5 | 2 | 6,306 |
| Visits to medical conferences | 30 | 93 | 206 | 915 | 28 | 1,558 | 113 | 18 | 9 | 0 | 2 | 2 | 6,765 |
| Nursing visits | 199 | 315 | 386 | 552 | 70 | 1,495 | 605 | 47 | 43 | 43 | 5 | 14 | 18,152 |
| PRESCHOOL HYGIENE |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Individuals admitted to medical service | 11 | 43 | 473 | 733 | 33 | 1,029 | 246 | 69 | 23 | 0 | 0 | 2 | 6,044 |
| Individuals admitted to nursing service | 12 | 76 | 217 | 309 | 10 | 1,055 | 459 | 87 | 66 | 1 | 0 | 21 | 6,929 |

## TABLE 2.—TABULATION OF ACTIVITIES OF FULL TIME COUNTY HEALTH UNITS IN FLORIDA, JANUARY-DECEMBER, 1941. — Continued.

| | LEVY-GILCHRIST | MONROE | NASSAU | ORANGE | OSCEOLA | PINELLAS | TAYLOR | CLAY-BRADFORD | FLAGLER | SANTA ROSA | SEMINOLE | WALTON-OKALOOSA | TOTALS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preschool Hygiene (Continued) | | | | | | | | | | | | | |
| Visits to medical conferences | 33 | 38 | 1,081 | 1,511 | 137 | 2,219 | 323 | 38 | 48 | 3 | 0 | 7 | 10,537 |
| Nursing visits | 54 | 162 | 845 | 679 | 53 | 1,667 | 1,204 | 89 | 108 | 13 | 12 | 27 | 18,596 |
| Inspections by dentists or dental hygienists | 19 | 0 | 75 | 21 | 0 | 64 | 1 | 0 | 28 | 0 | 0 | 0 | 409 |
| SCHOOL HYGIENE | | | | | | | | | | | | | |
| Inspections by physicians or nurses | 1,935 | 2,201 | 2,392 | 4,349 | 782 | 7,187 | 43 | 496 | 80 | 880 | 33 | 50 | 70,042 |
| Examinations by physicians | 1,298 | 585 | 619 | 5,201 | 820 | 1,675 | 630 | 51 | 81 | 756 | 317 | 73 | 30,339 |
| Individuals admitted to nursing service | 68 | 53 | 290 | 2 | 5 | 2,209 | 63 | 94 | 7 | 6 | 9 | 53 | 4,377 |
| Nursing visits | 165 | 160 | 645 | 2,388 | 114 | 4,155 | 164 | 95 | 59 | 15 | 80 | 78 | 25,982 |
| Inspections by dentists or dental hygienists | 62 | 1 | 43 | 5,413 | 1 | 7,344 | 0 | 0 | 90 | 0 | 0 | 0 | 20,552 |
| ADULT HYGIENE | | | | | | | | | | | | | |
| Medical examinations | 429 | 616 | 257 | 410 | 266 | 64 | 274 | 5 | 26 | 0 | 0 | 135 | 8,156 |
| MORBIDITY SERVICE | | | | | | | | | | | | | |
| Medical visits | 855 | 39 | 280 | 195 | 4 | 373 | 474 | 55 | 4 | 0 | 0 | 1 | 6,694 |
| Nursing visits | 344 | 45 | 276 | 779 | 32 | 1,345 | 72 | 386 | 42 | 17 | 0 | 6 | 8,377 |
| Admissions to hospitals | 3 | 17 | 3 | 20 | 1 | 246 | 8 | 21 | 1 | 0 | 0 | 0 | 390 |
| GENERAL SANITATION | | | | | | | | | | | | | |
| Approved individual water supplies installed | 4 | 5 | 4 | 3 | 1 | 13 | 22 | 8 | 2 | 1 | 1 | 3 | 690 |
| Approved excreta disposal systems installed | 75 | 114 | 191 | 574 | 109 | 229 | 197 | 56 | 3 | 0 | 15 | 8 | 7,411 |
| Field visits | 2,276 | 2,224 | 813 | 1,430 | 500 | 1,140 | 3,114 | 766 | 266 | 83 | 90 | 194 | 57,201 |
| PROTECTION OF FOOD AND MILK | | | | | | | | | | | | | |
| Food-handling establishments registered for supervision | 27 | 54 | 43 | 2 | 48 | 87 | 93 | 53 | 16 | 2 | 9 | 68 | 2,461 |
| Field visits to food-handling establishments | 101 | 238 | 393 | 8 | 83 | 385 | 313 | 2,032 | 25 | 4 | 9 | 74 | 12,910 |
| Dairy farms reg. for super. | 3 | 0 | 4 | 0 | 10 | 1 | 3 | 2 | 0 | 0 | 0 | 6 | 214 |
| Field visits to dairy farms | 17 | 83 | 55 | 3 | 65 | 10 | 45 | 4 | 0 | 0 | 0 | 16 | 2,951 |
| Milk plants reg. for super. | 2 | 0 | 6 | 0 | 3 | 1 | 4 | 4 | 0 | 0 | 0 | 1 | 122 |
| Field visits to milk plants | 6 | 89 | 21 | 0 | 1 | 10 | 44 | 6 | 0 | 0 | 0 | 1 | 880 |
| LABORATORY | | | | | | | | | | | | | |
| Specimens examined | 9,745 | 1,662 | 4,094 | 5,846 | 764 | 7,544 | 4,594 | 2,654 | 770 | 604 | 207 | 1,058 | 121,060 |

---

## TABLE 2.—TABULATION OF ACTIVITIES OF FULL TIME COUNTY HEALTH UNITS IN FLORIDA, JANUARY-DECEMBER, 1941. — Continued.

| | BAKER | BAY | BROWARD | DADE | DUVAL | ESCAMBIA | FRANKLIN-GULF WAKULLA | GADSDEN | HAMILTON | GLADES-HIGHLANDS | HILLS-BOROUGH | JACKSON | LAKE | LEON |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preschool Hygiene (Continued) | | | | | | | | | | | | | | |
| Visits to medical conferences | 187 | 356 | 27 | 0 | 377 | 417 | 469 | 763 | 83 | 110 | 1,408 | 44 | 480 | 378 |
| Nursing visits | 470 | 699 | 37 | 194 | 2,972 | 1,297 | 834 | 2,480 | 126 | 648 | 1,654 | 75 | 1,341 | 856 |
| Inspections by dentists or dental hygienists | 0 | 147 | 0 | 0 | 4 | 0 | 0 | 0 | 6 | 3 | 7 | 34 | 0 | 0 |
| SCHOOL HYGIENE | | | | | | | | | | | | | | |
| Inspections by physicians or nurses | 675 | 2,187 | 2,949 | 5,829 | 12,864 | 5,793 | 1,331 | 2,908 | 40 | 1,112 | 6,757 | 2,339 | 4,049 | 781 |
| Examinations by physicians | 1,295 | 1,240 | 442 | 975 | 711 | 4,182 | 728 | 1,178 | 199 | 541 | 3,831 | 226 | 2,050 | 635 |
| Individuals admitted to nursing service | 28 | 0 | 8 | 613 | 5 | 1 | 54 | 5 | 7 | 61 | 359 | 32 | 339 | 6 |
| Nursing visits | 357 | 501 | 5,007 | 3,674 | 1,555 | 1,718 | 349 | 574 | 75 | 816 | 1,756 | 603 | 679 | 200 |
| Inspections by dentists or dental hygienists | 0 | 123 | 0 | 0 | 619 | 3,211 | 0 | 156 | 176 | 27 | 2,130 | 587 | 235 | 333 |
| ADULT HYGIENE | | | | | | | | | | | | | | |
| Medical examinations | 336 | 22 | 1,396 | 112 | 798 | 545 | 91 | 462 | 166 | 161 | 240 | 687 | 29 | 629 |
| MORBIDITY SERVICE | | | | | | | | | | | | | | |
| Medical visits | 98 | 52 | 1 | 1 | 53 | 78 | 579 | 639 | 1,508 | 8 | 8 | 1,375 | 2 | 12 |
| Nursing visits | 223 | 202 | 49 | 189 | 128 | 1,462 | 424 | 372 | 26 | 214 | 156 | 1,462 | 102 | 24 |
| Admissions to hospitals | 1 | 0 | 0 | 8 | 2 | 0 | 3 | 3 | 6 | 0 | 11 | 0 | 22 | 14 |
| GENERAL SANITATION | | | | | | | | | | | | | | |
| Approved individual water supplies installed | 8 | 75 | 35 | 4 | 29 | 109 | 7 | 16 | 2 | 3 | 37 | 12 | 153 | 133 |
| Approved excreta disposal systems installed | 167 | 381 | 476 | 467 | 396 | 690 | 181 | 167 | 53 | 103 | 959 | 76 | 897 | 827 |
| Field visits | 1,172 | 1,790 | 1,721 | 3,812 | 1,815 | 11,224 | 3,005 | 760 | 691 | 1,665 | 2,980 | 1,213 | 1,952 | 10,505 |
| PROTECTION OF FOOD AND MILK | | | | | | | | | | | | | | |
| Food-handling establishments registered for supervision | 30 | 61 | 635 | 438 | 24 | 139 | 159 | 3 | 13 | 82 | 76 | 13 | 185 | 101 |
| Field visits to food-handling establishments | 139 | 277 | 1,061 | 1,793 | 136 | 1,262 | 540 | 65 | 49 | 280 | 753 | 223 | 900 | 1,767 |
| Dairy farms reg. for super. | 2 | 17 | 16 | 4 | 0 | 72 | 1 | 21 | 4 | 5 | 1 | 5 | 14 | 23 |
| Field visits to dairy farms | 12 | 271 | 127 | 38 | 2 | 1,118 | 17 | 72 | 10 | 36 | 3 | 25 | 138 | 784 |
| Milk plants reg. for super. | 0 | 28 | 13 | 1 | 2 | 37 | 2 | 2 | 0 | 6 | 0 | 0 | 7 | 3 |
| Field visits to milk plants | 0 | 106 | 119 | 2 | 0 | 255 | 11 | 9 | 0 | 16 | 0 | 37 | 33 | 114 |
| LABORATORY | | | | | | | | | | | | | | |
| Specimens examined | 2,606 | 3,915 | 10,347 | 2,187 | 5,880 | 11,609 | 7,364 | 5,033 | 6,575 | 2,488 | 7,174 | 6,535 | 3,225 | 6,580 |

# MALARIA RESEARCH

MARK F. BOYD, M.D., *Director,* Station for Malaria Research, Rockefeller Foundation, International Health Division, Tallahassee, Florida.

A. Completed studies and papers:

In the period under review, typescripts of completed reports with the following titles have been submitted to the home office, viz:

102. Mark F. Boyd. "The Comparative susceptibility of two strains of *Anopheles quadrimaculatus* to infection with human malaria parasites."

103. Mark F. Boyd, "On the temperature of incubation for anophelines infected with *Plasmodium falciparum.*"

104. Mark F. Boyd. "On the varying infectiousness of different patients infected with vivax malaria."

105. Mark F. Boyd. "Criteria of immunity and susceptibility in naturally induced vivax malaria infections."

B. Work in Progress:

(1) Humoral Immunity: Two non-luetic convalescents from naturally induced infection with the McCoy strain of *P. vivax,* (whose blood type indicates they are universal donors), have been hyperimmunized to this strain and species, by the intravenous administration of large doses of trophozoites. These were given as follows:

| *Date* | *Dose in millions of parasites* | *Effect* |
|---|---|---|
| 10/ 3/41 | 39 | None |
| 11/ 4/40 | 234 | " |
| 4/ 2/41 | 272 | " |
| 5/14/41 | 8,140 | " |
| 10/15/41 | 52 | Reaction |

The super inoculations given prior to May, 1941, must have built up a formidable immunity, as on the 14th of that month, a dose exceeding 8 billions of parasites was given without producing any clinical effect. However the inoculation given in October, 1941, with the idea of maintaining the titer, was followed by an immediate reaction in both, suggesting that they had become sensitized. The reaction was readily controlled by adrenalin.

Some studies of the properties of these sera are in progress.

(2) Exflagellation: The studies on the *in vitro* production of exflagellation in thick moist smears of blood exposed to a $CO^2$ atmosphere in desiccator chambers, produced by the use of $CO^2$ ice, have been suspended owing to the resignation of Doctor Benbow. The results secured to date when the tests were controlled by the application of mosquitoes for infection, have been as follows:

Observations:

| | | | | Mosquito lots | |
|---|---|---|---|---|---|
| **Results** | **Number** | **Successful** | **P.c.** | **Applied** | **Infected** |
| **Positive** | 11 | | | 11 | 11 |
| **Negative** | 5 | | | 5 | 5 |
| **Total** | 16 | 11 | 69.0 | | |

Male gametocytes were seen at the time of each observation, while females were not detected on two positive and two negative occasions. The actual presence of mature gametocytes at the time is demonstrated by the successful infection of some members of every lot of mosquitoes applied co-incident with an observation. The negative results are thus probably attributable to insufficient search.

(3) Preservation of parasites by freezing: During the year we have installed a recording thermometer (with a weekly revolution) on our freezing chamber, and have, even during the summer period, been able to continuously maintain a temperature below 70°C in the interior. The procedure is still provisional and experimental, as entirely apart from the question of survival period of the frozen parasites, we have to consider several points, such as (a) initial parasite density, (b) defibrination vs heparinization, (c) volume blood per freezing tube, (d) volume thawed frozen blood for inoculation, (e) parasites in frozen blood vs parasites in frozen mosquitoes.

To date the only takes effected with frozen blood have been after 2 weeks' freezing of the McDaniel strain of *P. vivax,* and after 1 week's freezing of the Bynam strain of *P. falciparum.* Results to date with parasites in the sporogonous cycle have been negative.

(4) Susceptibility of *Anopheles bellator*s In an effort to co-operate with Dr. Lloyd Rozeboom, who, on behalf of the Medical Department, U. S. Army, was conducting studies in Trinidad, B. W. I. to ascertain whether *A. bellator* was incriminated in the malaria problem of that island, we applied the survivors of several lots shipped us via air express by Dr. Rozeboom, to patients infected with the McCoy strain of *P. vivax,* with *quadrimaculatus* controls. Successful results with the *bellator* were secured in only one of seven trials, although the quad controls nearly

all developed high incidences of infection. The results are summarized below:

| No. Trials | Gametocytes per cmm | | Exfl. | A. bellator | | | A. quadrimaculatus | | |
|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | | Fed | Exam. | Pos. | Fed. | Exam. | Pos. |
| 1 | 650 | 110 | + | 10 | 10 | 4 | 12 | 12 | 12 |
| 6 | — | — | | 23 | 19 | 0 | 287 | 77 | 54 |

The mortality of the *bellator* during shipment was high, and, after receipt, we were unable to maintain any of the obviously weakened survivors for more than 10 days.

(5) Natural infection of wild Cuban anophelines:

Examination of the stained stomachs of the wild anophelines dissected by Miss L. Logan in Cuba in 1940, was completed with negative results. There were examined the following stomachs:

| | |
|---|---|
| *Anopheles vestitipennis* | 1,000 |
| *Anopheles crucians* | 103 |
| *Anopheles albimanus* | 3 |
| | 1,106 |

Cysts were found on the stomachs of four of 12 *A. vestitipennis* which had been experimentally fed on a falciparum patient.

(6) Pure line strain of *A. quadrimaculatus*: Mr. Jack C. Russell, the extramural fellow of the University of Florida who has been assigned to this problem, spent the months from February to May inclusive at the University. Since his return he has made progress toward the solution of his problem, which we believe is significant. The greatest difficulty to surmount has been the question of mating in confined spaces. Encouraging results followed the introduction of a two compartment mating cage, in which a large number of males is introduced into the upper chamber, and one male and several females into the lower. Results secured have been as follows:

| Number | Age at Introduction Into Cage | No. Males in Upper Compartment | Lower Compartment | | Prior Meal | | Spermatheca | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | No. Males | No. Females | Dextrose | Blood | Time Confined | Dissected | With Sperm |
| 1 | 3-5 dys. in contact | 35 males | 1 | 13 | 10 | 3 | 2 days | 6 | 3 |
| 2 | 6-8 dys. in contact | 20 both sexes | 1 | 7 | 7 | | 1 “ | 7 | 3 |
| 3 | 1,d. sexes separate | 15 both sexes | 1 | 7 | 0 | 0 | 1 “ | 7 | 0 |
| 4 | 2,d. sexes separate | 0 | 1 | 8 | 8 | | 2 “ | 8 | 0 |
| 5 | 3,d. sexes separate | 0 | 1 | 12 | 12 | | 1 “ | 12 | 0 |
| 6 | 4,d. sexes separate | 0 | 1 | 6 | 6 | | 1 “ | 6 | 0 |
| 7 | 5,d. sexes separate | 0 | 1 | 6 | 6 | | 1 “ | 6 | 0 |
| 8 | 8,d. sexes separate | 0 | 1 | 10 | 10 | | 1 “ | 10 | 1 |
| 9 | 3,d. in contact | 1 male | 1 | 10 | 10 | | 1 “ | 10 | 1 |
| 10 | 1-2 d. in contact | 0 | 1 | 10 | 10 | | 1 “ | 10 | 1 |
| 11 | 4,d. in contact | 40 | 1 | 10 | | | 3 “ | 10 | 1 |
| 12 | 4,d. in pre contact | 0 | 1 | 11 | | | 4 “ | 11 | 0 |
| 13 | 5,d in pre contact | 0 | 1 | 13 | | | 3 “ | 13 | 3 |
| 14 | 6,d. in pre contact | 0 | 1 | 13 | | | 3 “ | 13 | 2 |
| 15 | 6,d in pre contact | 30 | 1 | 9 | | | 3 “ | 5 | 4 |
| 16 | 3,d. in pre contact | 15 | 1 | 7 | | | 3 “ | 7 | 2 |
| 17 | 10,d. in pre contact | 0 | 1 | 13 | | | 1 “ | 13 | 3 |
| 18 | 8,d. in pre contact | 0 | 1 | 10 | | | 3 “ | 10 | 3 |

These results further suggest that pre-mating association of the sexes in small cages gave better results than when confined separately prior to mating contact.

It is obvious that the importance of the two compartment mating cage, and pre-mating association has not yet been established. Furthermore there is evidence to suggest that optimal conditions of temperature and humidity may exist. Nevertheless, Mr. Russell has to date succeeded in producing 3 successive generations as the result of brother-sister matings. The current generation, which is the $F_2$, may perhaps show some evidence of mendelian segregation.

(7) Morphological differences of falciparum strains:

This study has been continued throughout the year with the collaboration of Miss Persis Putnam.

Dr. Kitchen submits the following statement of progress:

"In regard to the morphological study of falciparum gametocytes which has been under way, at least part of the work has been completed and it is proposed to present the material in three papers as follows:

(a.) "Observations on the Mechanism of the Parasite Cycle in Falciparum Malaria."

(b.) "Morphological Studies of *P. falciparum* Gametoctytes of Different Strains in Naturally Induced Infections."

(c.) "Comparative Morphological Studies of *P. falciparum* Gametocytes in Variously Induced Infections."

"The first two papers are almost finished and the third has yet to be prepared. A fourth paper involving further studies of the parasite cycle is under consideration."

(8) Testing of synthetics:

During the year Dr. L. T. Coggeshall submitted one specimen of a synthetic drug for the appraisal of its anti-malarial properties. This material was not tested, as upon the examination of the shipment, none of the ampoules containing the chemicals was labelled, nor were the cardboard containers of the ampoules. Dr. Kitchen, who received the material, consequently declined to assume the responsibility of injecting material from an unlabelled container into human subjects.

C. Malaria Therapy:

The inoculations made during the year on the malaria therapy service of the Florida State Hospital, are shown below. Re-inoculation for hyperimmunization or cross immunity tests are included:

| Class | Status with same species of parasite | P. vivax | | | P. falciparum | | | P. malariae | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Takes | Fail. | Pend. | Takes | Fail. | Pend. | Takes | Fail. | Pend. |
| Natural inoculation (sporozoites) | Primary | 28 | 7 | 2 | 13 | 10 | 4 | | | |
| | Reinoc. after prev. failure | 2 | 4 | | 2 | 1 | | | | |
| | Reinoc. after Prev. take | | | | | | | | | |
| Artificial inoculation (trophozoites) | Primary | 8 | | | 27 | 2 | | 9 | | |
| | Reinoc. after prev. failure | 4 | 2 | | 2 | 1 | | | | |
| | Reinoc. after prev. take | | 5 | | 12 | | | 6 | | |
| Total | | 42 | 18 | 2 | 56 | 14 | 4 | 15 | 0 | 0 |

The McCoy strain of *P. vivax* has been as in the past, the principal parasite utilized for the inoculation of white patients, and has been carried through human-anopheline passages 57 to 62 inclusive. The only artificial inoculations done with this strain have been for special purposes. The Ohio and McDaniels strains mentioned in the 1940 report have been discontinued.

The Costa strain of *P. falciparum* has been put through seven consecutive human-anopheline passages, the results of the last of which are still pending. Since February we have been incubating the mosquitoes infected with this parasite at approximately 30°F, with, we believe, more reliable results. We are discontinuing several strains including the Long, Harden, Mexican and Panamanian, maintained for several years. We have just secured a take with a strain received from Trinidad, B.W.I., through the courtesy of Dr. Downs.

During the year we substituted the Glisson strain of *P. malariae* for the Jones' strain. All inoculations with this parasite were artifically performed. A new strain has been received from Trinidad, B.W.I., through the courtesy of Dr. Downs.

The McCoy strain has been utilized during the year for the inoculation of 14 patients referred by seven practicing physicians. These returned home to have the evolution of their attack managed by the referring physician.

D. Insectaries:

The parent colony of *A. quadrimaculatus* continues to thrive in the old insectary where it was first established. The second insectary has been assigned to Mr. Jack Russell.

During the year both insectaries were renovated by external painting and the installation of new curtains.

Although the hurricane of October 7 dropped a fallen pine squarely into the space between the two buildings, they providentially escaped without the slightest injury.

E. Field Work:

No field studies under the auspices of the station have been prosecuted during the year.

F. Instruction:

During the year the following persons have spent one or more weeks at the station for the purpose of receiving instruction in malariology, viz:

Dr. O. M. Derryberry, Tennessee Valley Authority
Miss Betty Ferrell, University of North Carolina
Lieut. Clarence Ketchum, M.C., U. S. Army
Dr. (and Mrs.) Wilbur G. Downs, IHD.
Miss Daphne Fulton, Malaria Survey, British Guiana
Mr. Rainey Oven, Medical Student, University of Virginia
Mr. J. G. Alexander, Pvt., local air base, assigned anti-mosquito inspection.
Dr. George Bevier, IHD.
Dr. Francisco Dy, IHD fellow
Dr. R. G. Patterson, Florida State Board of Health
Dr. Kenneth MacDonald, University of Iowa
Dr. (and Mrs.) H. P. Carr, IHD
Dr. Persis Putnam, IHD

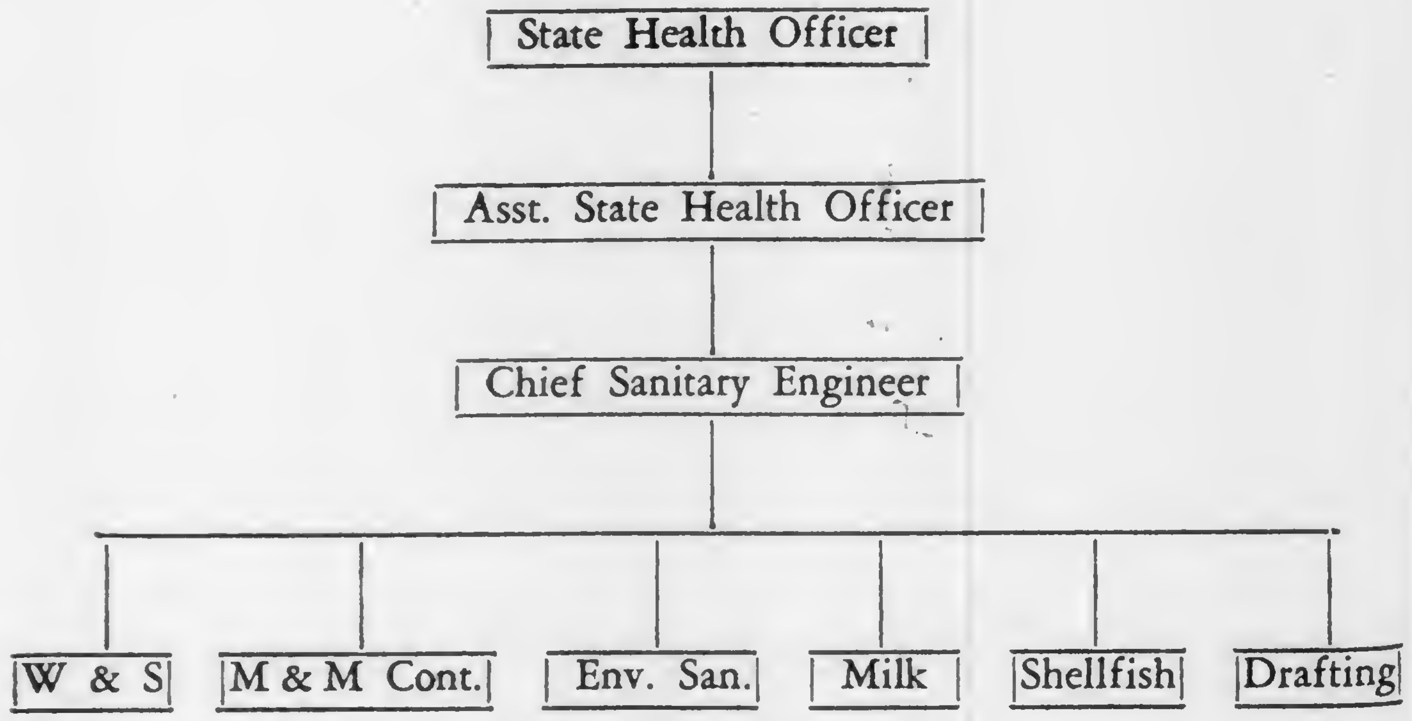
Relations with the activities of the State Board of Health, of the Florida State College for Women, and of the Florida State Hospital, continue to be uniformly cordial. All possible opportunities for mutual assistance and co-operation are utilized.

# SANITARY ENGINEERING

David B. Lee, *Director*

On January 1, 1941, the new director of the Bureau of Sanitary Engineering assumed office. The first step in the reorganization of the Bureau was the consolidation of the Division of Sanitation and the Bureau of Engineering. Both departments were placed under the direction of the Chief Sanitary Engineer, and divisions of the Bureau created as listed below:

Administrative Division
Water & Sewage Division
Malaria & Mosquito Control Division
Environmental Sanitation Division
Milk Division
Shellfish Division
Drafting Division



At the conclusion of the year 1941 the Bureau consisted of the following persons:

| | |
|---|---|
| 1 | Director and Chief Sanitary Engineer |
| 1 | Associate Sanitary Engineer |
| 4 | Assistant Sanitary Engineers |
| 1 | Sanitation Consultant |
| 1 | Shellfish Consultant |
| 1 | Milk Consultant |
| 1 | Draftsman |
| 1 | Sanitary Officer |
| 1 | Secretary |
| 4 | Stenographers |

Supplementing the regular personnel of the Bureau were twelve engineers and one Junior Stenographer (U. S. Civil Service) assigned to the state by the U. S. Public Health Service to assist in vital defense areas. These are listed below:

| | |
|---|---|
| 1 | Assistant Entomologist-Malariologist |
| 1 | Assistant Sanitary Engineer |
| 4 | Assistant Public Health Engineers |
| 6 | Junior Public Health Engineers |
| 1 | Junior Stenographer |

## STATE SANITARY CODE

Chapters added to the State Sanitary Code during the year were:

| | |
|---|---|
| Chapter IV | Public Sewerage Systems |
| Chapter V | Stream Pollution |
| Chapter VII | Sanitary Privies |
| Chapter XI | Milk and Cream |
| Chapter XIV | Meat Markets |
| Chapter XXI | Swimming Pools and Bathing Places |
| Chapter XXII | Drainage Wells |
| Chapter XXIII | Impounded Waters |
| Chapter XXVI | Recreation Camps |
| Chapter XXVII | Bedding |
| Chapter XXVIIII | Excreta Disposal Facilities to be Provided in Every Building |
| Chapter XXIX | Miscellaneous Regulations |
| Chapter XXX | Industrial Hygiene |
| Chapter XXXII | Garbage |

The Code was published this year in loose-leaf form and distributed among local health officials and other interested persons. In this way the chapters to be added can be mailed out, when completed, for insertion in the loose-leaf binder.

The Sanitary Engineering section of the Health Officers Manual was edited and prepared by the Bureau.

## CONVENTIONS AND STATE TECHNICAL ORGANIZATIONS

Personnel of the Bureau participated on the programs of the various professional organizations holding conventions during 1941. At the meeting of the Florida Engineering Society, March 20, 21, and 22, the Chief Engineer delivered a paper entitled, "Sanitary Precautions in and Around Military Encampments" and the Associate Engineer supplemented this paper with one on the subject of "Sewage and Water Treatment Problems at Army Posts in Florida". The Chief Engineer was appointed chairman of the Committee on Sewerage and Sanitation of the Florida Engineering Society at this meeting.

The Florida Anti-Mosquito Association held its Annual Meeting in Jacksonville on April 25, and members of the staff assisted with the program and furnished stenographic assistance for the officers of the Association.

In October the Chief Engineer attended the meeting of the American Public Health Association in Atlantic City and the Conference of State Sanitary Engineers held in conjunction with that convention. As Chairman of the Committee on Mosquito Control of the latter organization, the Chief Engineer delivered the annual report. On the same trip he attended the meeting of the Federation of Sewage Works Associations in New York as delegate from the Florida Sewage Works Association.

In November the Chief Engineer gave the Annual Report of the Sub-Committee on Engineering of the National Malaria Committee at its annual meeting in St. Louis. He also read a paper entitled, "General Sanitation in Southern Defense Areas" before the engineering section of the Southern Branch of the American Public Health Association. Later the same month, the Florida Section of the American Water Works Association met in Daytona. All engineers in the department attended the convention.

The Florida Public Health Association convened this year in Orlando. Just prior to the convention the Bureau sponsored two short seminars. A two-day seminar on milk sanitation was conducted by the Bureau staff, assisted by a representative of the U. S. Public Health Service. This meeting was well attended by milk sanitarians from all over the State, as well as by all members of the milk division of the Florida State Department of Agriculture.

A one-day meeting was held on the new "State Sanitary Code". Seventy-six attended this meeting—doctors, engineers, sanitarians, nurses, and interested persons. This was one of the most successful meetings of the year. At the conclusion of this meeting, the members organized the Sanitation Section of the Florida Public Health Association with the following officers:

Mr. Paul Scudder, President
Mr. L. E. Johns, Vice-President
Mr. Burke Chester, Secretary

During the summer of 1941 there was held at the University of Florida, a six-weeks short course for sanitarians. The staff of the Bureau furnished practically all of the teaching personnel for this course.

## MUNICIPAL WATER SUPPLY

All too often the general public takes a matter-of-fact attitude toward water supply, not realizing the difficulty entailed in delivering a safe product to them. Water is our second most essential commodity for life, not only as an article of diet but for personal cleanliness. In Florida, too, the importance of potable waters for manufacturing purposes is clearly pictured with the sudden increase in paper making, the industry using enormous volumes of water. The necessity of a safe and adequate water supply and its relation to defense against military aggression has been stunningly brought home with the fall of Hong Kong. The commanding officer of the British garrison stated that although further defense of the base was possible, its ultimate capture was inevitable because the enemy was in complete control of its water supply. So it is noted that though the nation be at peace or war, one item of principal importance to all is provision of a potable water supply of adequate volume.

According to present opinion, a water supply should be clear, of neutral taste, of reasonable temperature, neither corrosive nor scale-forming, but so mineralized as to produce unfavorable physiological effects and containing no pathogenic organisms. From the public health viewpoint, the latter consideration is of primary significance. Achievements of public health authorities regarding water supply may be gauged from the fact that in 78 American cities in 1910 the typhoid death rate was 21 per 100,000 but that rate had fallen to 0.67 per 100,000 in 1938. This certainly speaks well for the control exercised over water supply and distribution as factors in the transmission of disease. However, unless vigilance is continued this low rate cannot be maintained.

In formulating a long-term program for water supply control it was first necessary to make an inventory of all supplies to determine the status and adequacy of facilities throughout the state. Such a survey has been in progress for the past three years. At the beginning of 1941 it was only about fifteen per cent completed. By the end of August the entire state had been completed and a record of facilities is now available. In view of the emergency which has developed, the completion of this survy is extremely important and data obtained in this manner was most useful in the military and naval expansion program within the state and will be quite useful in the coordination of the Civilian Defense Program.

The ultimate desire and goal of public health engineers charged with control of water supplies is to construct and maintain these supplies in such a condition that their bacterial and chemical quality will be unquestioned. Briefly, the entire field of water quality can be summarized in the two phrases, proper construction and adequate maintenance, the latter phrase including operation. Chapter II of the Florida State Sanitary Code sets forth regulations regarding the place of the Bureau of Sanitary Engineering in the program of municipal water plant construction and maintenance. The Bureau of Sanitary Engineering is charged with reviewing plans for installation, extension or alteration of public water supplies and control of operation. Previously, plans and specifications have been reviewed by the department but it is our opinion that improved systems have been constructed during the last year due to a more thorough understanding of the problems involved on the part of a better-trained staff. In the revised program for the Bureau, formulated earlier in the year, it was stated that "Operation of treatment plants has been sadly neglected due to lack of personnel. During the coming year, engineers will visit treatment plants at designated intervals". It was further stated that operation reports would be required. Accordingly, during the latter part of November a program was instituted of visiting treatment plants located in the southern part of the state. Gratifying results have been obtained but it may be impossible at present to extend it into north Florida because of the loss to the Army of two assistant sanitary engineers. With the consummation of this program, the urban population of Florida can utilize its water supplies with increased assurance. In the absence of good plant operation even a well-designed and constructed plant may become a public health hazard.

Section 7, Chapter II, of the Florida State Sanitary Code provides that water works shall be under competent supervision. The Bureau of Sanitary Engineering has attempted to coordinate this aspect of its program with that of the Florida Water Works Operators Association which provides for licensing and examining operators. Through the efforts and cooperation of the Association and this department, a plan for licensing water works operators has been evolved. This scheme sets forth the qualifications and classifications of operators and names an examining board composed of the Chief Sanitary Engineer of the State Board of Health, a faculty member of the University of Florida and three operators. To date the plan has not yet functioned, but it is expected that it will be placed in operation in the near future.

Relative to this plan the University of Florida Extension Service is providing courses in water treatment for interested persons. The Bureau of Sanitary Engineering has offered the services of its staff in connection with this work. The University has maintained a Water Works Short Course for a number of years. Last spring several members of the engineering staff presented papers during this two-day school. While the short course serves a much needed purpose at present, it is hoped that in the future it can be expanded far beyond its present scope.

As a result of an extensive study by the Associate Engineer and other members of the staff, a rather alarming situation was brought to light with regard to ground water bacterial quality and sampling in general. It was observed that of the supplies taken from ground water sources serving sixty per cent of the urban population considered, fifty-six per cent did not meet with the United States Public Health Service standards for bacterial quality. This condition is intolerable and must not be permitted to continue. The only way to determine specific reasons is to make a sanitary survey of each supply involved. It is impossible to proceed at this time with this plan due to loss of personnel to the Army and the added defense activities imposed on the department. The study also indicated the inadequacy of existing bacterial sampling procedures; as a result, the entire sampling schedule has been revised for the coming year. Those supplies which have had a perfect record for three years will remain on a quarterly basis; those passing United States Public Health Service standards will be placed on a bi-monthly basis; and those not passing these standards, together with all new and surface supplies, will be sampled monthly. This represents decided progress toward the present goal of monthly sampling of all supplies.

The large amount of time devoted during the year to defense activities in connection with water supply is emphasized by a review of the numerous Army, Navy, and Department of Agriculture plants mentioned in Table 1. In a majority of these plants, much time has been spent in formulating recommendations and reviewing plans for the various projects. It is believed that an unusual advance has ben made in these activities dur-

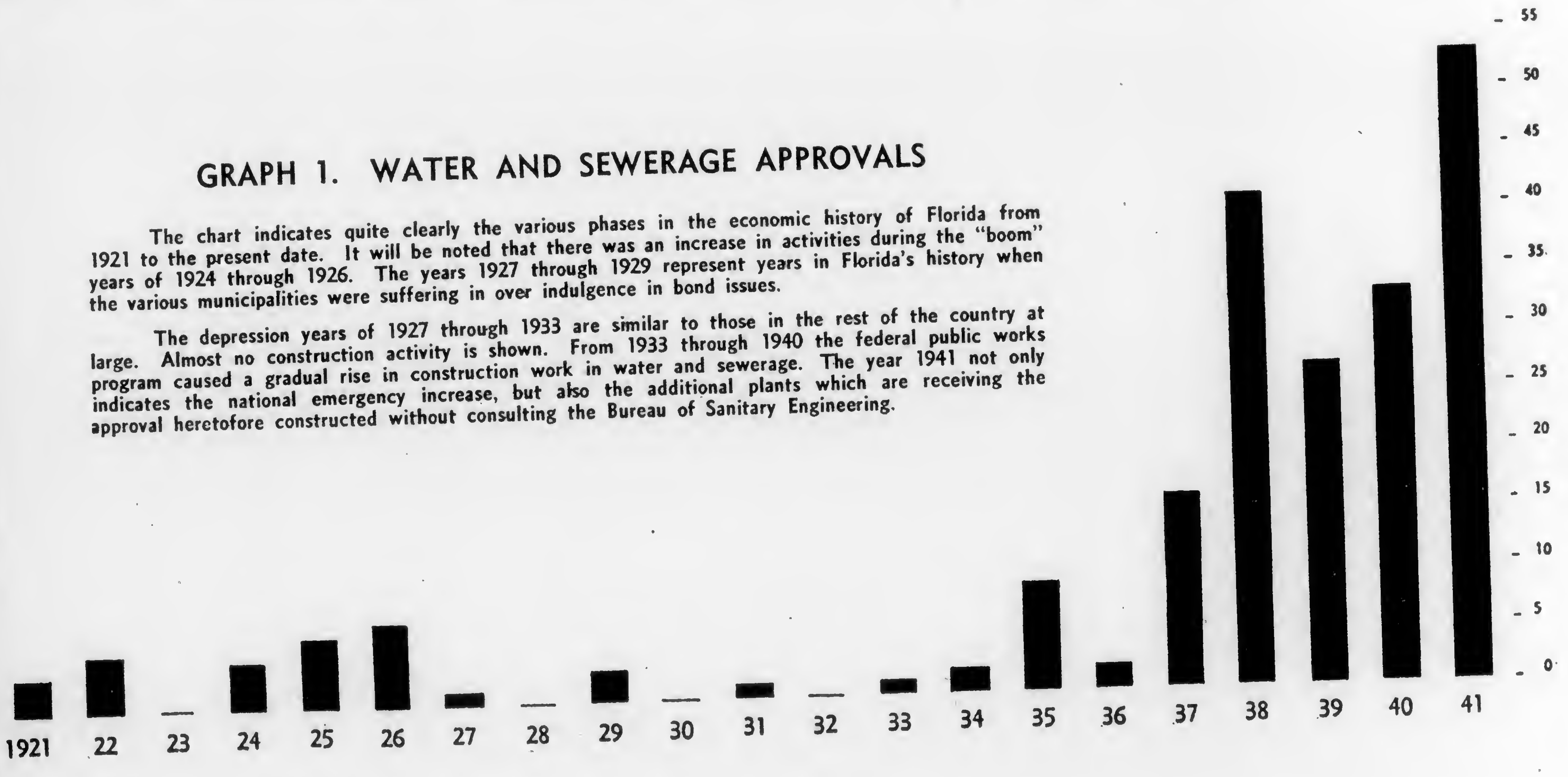
TABLE 1.— WATER SUPPLY CONSTRUCTION — 1941.

| LOCATION | Construction Status: New | Construction Status: Addition | Source Water: Wells: Deep | Source Water: Wells: Shallow | Source Water: Surface | Type Treatment: Softening: Zeolite | Type Treatment: Softening: Lime-Soda | Type Treatment: Softening: Recarb. | Type Treatment: Softening: Calgon | Type Treatment: Color Removal | Type Treatment: Taste & Odor Control | Type Treatment: F E: Aeration | Type Treatment: F E: Calgon | Type Treatment: H₂S: Aeration | Type Treatment: H₂S: Settling | Meth. of Sterilization: Chlorine | Meth. of Sterilization: Hypo-Chlor. | Lab. Control: Chem. | Lab. Control: Bact. | Distribution System | Storage: Elevated | Storage: Ground | APPROX. DESIGN. POP. | Per Cent Complete | CONSTRUCTION AGENCY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Morrison Field | X | .... | .... | X | .... | .... | X | X | .... | .... | .... | .... | .... | .... | .... | X | .... | X | X | X | X | X | 3,000 | 100 | USA |
| Port Orange | X | .... | X | .... | .... | X | .... | .... | .... | .... | .... | .... | .... | X | X | .... | X | .... | .... | X | X | X | .... | 15 | City |
| Perry | X | .... | X | .... | .... | .... | .... | .... | .... | .... | .... | X | .... | .... | .... | X | .... | X | X | .... | .... | X | .... | 60 | City |
| Ellyson Field | X | .... | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | X | .... | .... | .... | X | X | X | 1,200 | 100 | USN |
| Cross City | X | .... | X | .... | .... | .... | .... | .... | .... | .... | .... | X | .... | .... | .... | .... | X | .... | .... | X | X | X | .... | 3 | City |
| Ft. Lauderdale | .... | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | X | X | .... | .... | 90 | City |
| Dale Mabry Field | X | .... | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | X | .... | .... | .... | X | X | X | 2,300 | 100 | USA |
| Opa-Locka NAS | X | .... | .... | X | .... | .... | X | X | .... | .... | .... | .... | .... | .... | .... | X | .... | X | .... | X | X | X | 1,200 | 100 | USN |
| South Dade Camp | X | .... | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | X | .... | .... | .... | X | X | X | 900 | 0 | FSA |
| Redlands Camp | X | .... | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | X | .... | .... | .... | X | X | X | 900 | 0 | FSA |
| Canal Point Camp | X | .... | .... | .... | X | .... | .... | .... | .... | X | X | .... | .... | .... | .... | X | .... | X | X | X | X | X | .... | 5 | FSA |
| Lake Wales | .... | X | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 100 | FPS |
| New Camp De Soto | X | .... | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | X | .... | .... | X | X | X | 550 | 100 | NYA |
| Vero Beach | .... | X | .... | .... | .... | .... | X | X | .... | .... | .... | .... | .... | .... | .... | X | .... | X | X | X | .... | .... | .... | 0 | City |
| Cecil Field | X | .... | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | X | X | X | .... | .... | .... | X | X | X | 1,200 | 100 | USN |
| Drew Field | X | .... | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | X | .... | .... | X | X | X | 1,200 | 100 | USA |
| De Funiak Springs | .... | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | X | .... | .... | .... | .... | .... | .... | 100 | PWS |
| Bunnell | .... | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | X | .... | .... | .... | .... | .... | .... | .... | 100 | City |
| Marianna | X | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 100 | FPU |
| Blountstown | X | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 100 | FPU |
| Clearwater | X | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 100 | FPU |
| Indiantown | X | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 100 | City |
| Babson Park | X | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | X | .... | .... | .... | .... | .... | .... | 90 | City |
| Plew Heights | X | .... | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | X | .... | .... | X | X | X | 2,500 | 100 | PBA |
| Riddle Field | X | .... | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 500 | 100 | ER |
| Dorr Field | X | .... | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 500 | 100 | ER |
| Carlstrom Field | X | .... | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | X | .... | .... | .... | .... | .... | 500 | 100 | ER |
| Lodwick Flying School | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | X | .... | .... | .... | .... | .... | 200 | 100 | ER |
| New Biscayne Co. | X | .... | .... | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | X | .... | .... | X | .... | .... | 75 | 100 | NBC |
| N. E. Biscayne Co. | X | .... | .... | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | X | .... | .... | X | .... | .... | 75 | 100 | NEBC |
| Apopka | .... | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | X | .... | 100 | FPS |
| Orlando | .... | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | X | .... | 70 | City |
| Gainesville | .... | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | X | .... | .... | .... | 100 | City |
| Naples | X | .... | X | .... | .... | .... | X | .... | X | .... | .... | .... | .... | .... | .... | X | .... | X | X | .... | .... | X | .... | 5 | City |
| Sebring Basic Flying School | X | .... | X | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | X | .... | .... | .... | X | X | X | 4,000 | 60 | USA |
| Holly Hill | X | .... | X | .... | .... | .... | X | X | .... | .... | .... | .... | .... | .... | .... | X | .... | X | X | .... | .... | X | .... | 20 | City |
| Starke | X | .... | X | .... | .... | .... | .... | .... | .... | .... | .... | X | X | .... | .... | X | .... | .... | X | X | X | X | .... | 0 | City |

## GRAPH 1. WATER AND SEWERAGE APPROVALS

The chart indicates quite clearly the various phases in the economic history of Florida from 1921 to the present date. It will be noted that there was an increase in activities during the "boom" years of 1924 through 1926. The years 1927 through 1929 represent years in Florida's history when the various municipalities were suffering in over indulgence in bond issues.

The depression years of 1927 through 1933 are similar to those in the rest of the country at large. Almost no construction activity is shown. From 1933 through 1940 the federal public works program caused a gradual rise in construction work in water and sewerage. The year 1941 not only indicates the national emergency increase, but also the additional plants which are receiving the approval heretofore constructed without consulting the Bureau of Sanitary Engineering.



ing 1941 and that the department has been able to supply and expand a much needed service.

During the early part of December the Bureau of Sanitary Engineering, at the request of the Surgeon General of the United States Public Health Service, notified the various municipalities to increase chlorine residuals so that sufficient chlorine was made available for sterilization throughout distribution systems. At the same time, these towns were notified that immediate action should be taken to prevent sabotage. Gratifying results have been obtained. Some towns have not seen fit to comply with the request, however, and the Bureau of Sanitary Engineering feels that in these towns, the local authorities are now entirely responsible for any outbreaks of disease caused by their negligence.

## MUNICIPAL SEWERAGE

Closely allied with water supply are the problems of sewerage and sewage treatment. Adequate sewage disposal minimizes the chance of infection due to ingestion of fecal organisms. Lengthy strides have been taken in the past two decades and modern sewage treatment works can produce an effluent which is entirely innocuous.

Sewage treatment has as its primary purpose the prevention of damage to receiving waters. Many factors are involved in determining the extent to which a body of water can be utilized before appreciable damage occurs. The most important consideration is the further utilization of the particular body of water. The basic use of a stream is as a source of water for domestic use. Other items to be considered are recreation and shellfish culture. Fortunately, not many Florida streams are used as water supplies and so may receive heavier pollutional loads than is ordinarily the case. On the other hand, however, shellfish culture, bathing and recreational use in general are quite important. Much of Florida's tidal water is given over to these activities. Many areas have been closed due to the inadequate sewage disposal facilities of the cities contiguous to them. Florida is almost lacking in modern sewage treatment works; with the exception of military and naval bases and a few towns, larger cities in the state have no sewage disposal facilities. Several towns in the state put sewage into drainage wells and take water from other wells close by. However, much interest has been shown in sewage treatment in 1941. This is evidenced by the lengthy list of treatment plants and improvements which appear later. While the majority of the improvements have been due to national defense activities, the ratio of defense improvements to general municipal work is decidedly in keeping with that of other sections of the country.

As in the case of water supply, control of sewerage and sewage treatment is a function of the Bureau of Sanitary Engineering, set forth in Chapter IV of the State Sanitary Code. Plans are reviewed and recommendations are made regarding the degree of treatment necessary in each particular case. After the project is completed, operation supervision is required. As a result of this, a visiting plan similar to that discussed under the section of this report entitled "Water Supply" has been formulated. Studies of plant efficiency are made by the Bureau personnel.

## INDUSTRIAL WASTES

A specialized branch of sewage treatment is the disposal of industrial wastes. The industrial waste problem has never been considered acute heretofore and does not reach the magnitude of that in other more industrialized areas. However, there are industrial waste problems in certain specific localities. Among these are the citrus, paper, meat-packing, milk plant, tanning and laundry waste problems. The problem of municipal sewage disposal in this state is astronomical in magnitude as compared with the industrial waste problem. Despite this fact, the department adopted a policy in 1941 which is in keeping with the progressiveness of the present staff. Hereafter, all new industrial plants must be provided with adequate waste treatment facilities. As a result of this policy at least two industrial waste treatment works are projected. For one citrus plant, a two-year experimental permit has been given in an attempt to solve the problem involved.

A need has long been felt for an organization of sewerage workers in Florida similar to the progressive Florida Section of the AWWA. Accordingly, at the Short Course in Water given in April at the University, the Florida Sewage Works Association was formed. It was sponsored by the Bureau of Sanitary Engineering and has been affiliated with the Federated Sewage Works Association since October. The Association at the present time has thirty members—a large number when consideration is given all factors involved. Through this organization it is hoped to give added impetus to a program having as its objective the improvement of existing inadequate sewage disposal facilities in Florida. A survey of sewerage facilities in the state has been completed, the results again emphasizing the lack of sewerage in Florida.

In Table 2 a brief description is given of sewerage and sewage treatment works construction during 1941. The extent to which Florida has progressed is clearly pictured. The year 1941 has marked the introduction of modern sewage treatment to the state.

TABLE 2. — SEWERAGE CONSTRUCTION — 1941.

| LOCATION | Sedimentation |  | Filters |  |  | Activated Sludge | Chlorination | Lab. Control | Construction |  | Design Capacity Population | Separate Sludge Digestion | Per Cent Completed | Construction Agency | Collection System | Waste Lagoons | Sludge Drying Beds | Seepage Beds |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Primary | Secondary | High Capacity | Low Capacity | Subsurface |  |  |  | New | Addition |  |  |  |  |  |  |  |  |
| Elgin Field | Circu. |  | .... | .... | .... | .... | X | X | X | .... | 5,000 | X | 100 | USA | X | .... | X | .... |
| Camp Osceola | Imhoff |  | .... | .... | .... | .... | .... | .... | .... | X | 1,000 | .... | 100 | FSA | .... | .... | .... | .... |
| Ocala |  |  | .... | .... | .... | .... | .... | .... | .... | X | ........ | .... | 20 | City | X | .... | .... | .... |
| Ellyson Field | Rect. | Rect. | .... | X | .... | .... | X | X | X | .... | 1,200 | X | 100 | USN | X | .... | X | .... |
| Morrison Field | Circu. |  | .... | .... | .... | .... | X | X | X | .... | 3,000 | X | 100 | USA | X | .... | X | .... |
| Ft. Lauderdale |  |  | .... | .... | .... | .... | .... | .... | .... | X | ........ | .... | 100 | City | X | .... | .... | .... |
| Dale Mabry Field | Rect. | Rect. | X | .... | .... | .... | X | X | X | .... | 2,500 | X | 100 | USA | X | .... | X | .... |
| Opa-Locka NAS | Rect. | Rect. | .... | X | .... | .... | X | X | X | .... | 2,000 | X | 100 | USN | X | .... | X | .... |
| New Camp De Soto | Rect. | Rect. | .... | X | .... | .... | X | X | X | .... | 550 | X | 50 | NYA | X | .... | X | .... |
| Sarasota U.S.H.A. | Septic |  | .... | .... | .... | .... | .... | — | X | .... | 200 | .... | 100 | USHA | X | .... | .... | .... |
| Marianna | Imhoff |  | .... | .... | .... | .... | X | .... | .... | X | ........ | .... | 75 | City | X | .... | .... | .... |
| Jacksonville NAS | Rect.(2) |  | .... | .... | .... | .... | .... | .... | X | .... | ........ | X | 100 | USN | X | .... | .... | .... |
| South Dade Co. Camp | Imhoff | Dort. | .... | X | .... | .... | X | X | X | .... | 900 | .... | 3 | FSA | X | .... | X | .... |
| Redlands Camp | Imhoff | Dort. | .... | X | .... | .... | X | X | X | .... | 900 | .... | 3 | FSA | X | .... | X | X |
| Belle Glade Hospital | Septic |  | .... | .... | X | .... | .... | .... | X | .... | 60 | .... | 70 | FSA | X | .... | .... | .... |
| Canal Point Camp | Imhoff |  | .... | .... | .... | .... | X | X | X | .... | 700 | .... | 50 | FSA | X | .... | X | X |
| Cecil Field | Rect. | Rect. | .... | X | .... | .... | X | X | X | X | 1,200 | X | 100 | USN | X | .... | X | .... |
| Quincy |  |  | .... | .... | .... | .... | .... | .... | .... | X | ........ | .... | 100 | City | X | .... | .... | .... |
| Tyndall Field | Rect. | Circu. | .... | X | .... | .... | X | X | X | .... | 4,000 | X | 80 | USA | X | .... | X | .... |
| Riddle Field | Circu. | Rect. | .... | .... | .... | X | X | X | X | .... | 500 | X | 0 | ER | X | .... | X | .... |
| Drew Field | Rect. | Rect. | X | .... | .... | .... | X | X | X | .... | 2,000 | X | 100 | USA | X | .... | X | .... |
| Carlstrom Field | Rect. | Rect. | .... | .... | .... | X | X | X | X | ... | 500 | X | 100 | ER | X | .... | X | .... |
| Suni-Citrus Co. |  |  | .... | .... | .... | .... | .... | .... | X | .... | ........ | .... | 100 |  | .... | X | .... | .... |
| Sebring Flying School | Rect. | Rect. | X | .... | .... | .... | X | X | X | .... | 4,000 | X | 50 | USA | X | .... | X | .... |
| Dorr Field | Rect. | Rect. | .... | .... | .... | X | X | X | X | .... | 500 | X | 50 | ER | X | .... | X | .... |
| Starke | Circu. | Septic | X | .... | .... | .... | X | X | X | .... | 6,800 | X | 0 | City | X | .... | X | .... |
| Panama City — Rec. Camp | Septic |  | .... | .... | X | .... | .... | .... | X | .... | 250 | .... | 100 | USA | .... | .... | .... | .... |
| Lakeland |  |  | .... | .... | .... | .... | .... | X | X | .... | ........ | .... | .... | City | .... | .... | .... | .... |

LEGEND

USA — U. S. Army
USN — U. S. Navy
FSA — Farm Security Admin.
PWS — Public water supply
NYA — National Youth Admin.
FPU — Florida Public Utilities
ER — Embry-Riddle Co.
NEBC — NE Biscayne Co.
PBA — Public Buildings Admin.
FPS — Florida Public Service
NBC — New Biscayne Co.
USHA — U. S. Housing Authority

## STREAM POLLUTION

Stream pollution abatement is nation-wide in scope. Under the direction of the United States Public Health Service, an enormous amount of data have been collected. Had it not been for the European War starting in 1938, and the entry of the United States into the war, a comprehensive program of stream pollution control would probably have been instituted.

With the possible exception of the St. Johns River, the river pollution problem in Florida is not large-scaled. This is not true of pollution of tidal waters, many of which are grossly polluted. Recreation and shellfish culture is suffering as a result of the apparent inertia on the part of larger municipalities toward alleviation of deplorable situations which exist at their very front doors. Interest is being shown on the part of several cities in bettering these conditions. As yet, however, no project has reached the blue print stage.

In any educational program such as public health data must be obtained and facts presented to the general public, so that conditions which should be remedied may be emphasized. Toward this end the Bureau of Sanitary Engineering has made several investigations in 1941. Reports have been completed and conditions brought to the attention of local authorities. The data obtained will be useful in formulating the ultimate recommendations for waste treatment. In addition to this service, pollution surveys must be made for recreational and shellfish culture areas.

The following areas have been surveyed in 1941:

| *Water Area* | *Location* | *Reason for Survey* |
|---|---|---|
| Biscayne Bay | Miami | Recreation area badly polluted by wastes from Miami. |
| Lake Worth | West Palm Beach | Recreation area grossly polluted by wastes from adjacent cities. Requested by interested citizens. |
| Halifax River | Daytona Beach | Recreation and shellfish culture areas badly polluted by wastes from Daytona Beach. |
| Atlantic Ocean | Miami Beach | Bathing area. Ocean sewer outfall. |
| Kingsley Lake | Camp Blanding | Bathing area. Requested by military authorities. |
| St. Johns River | Jacksonville | Seaplane landing area polluted by wastes from Jacksonville and Naval Air Station. Requested by Naval Authorities. |
| Watsons Bayou | Panama City | Bathing area badly polluted by local wastes. Requested by military authorities. |

| | | |
|---|---|---|
| Pensacola Bay | Pensacola | Area polluted by wastes from Pensacola, Naval Air Station and Fort Barrancas. Requested by Military Authorities. |
| Atlantic Ocean | Key West | Pollution by city, military and naval bases. Requested by consulting engineer to determine extent of sewage treatment necessary. |

Many other areas should have been surveyed in connection with shellfish culture. With the limited personnel now available it will be impossible even during the coming year to keep abreast of this important activity. Approximately eight areas are now on the list for future survey.

## DRAINAGE WELLS

A condition exists in Florida in connection with land drainage and waste disposal which is encountered in only a few states in the union—the use of drainage wells. This is certainly a condition which should not have been tolerated for so long a time. If the practice had been allowed to continue on the course existing prior to 1941, it would have ultimately ruined the ground water supplies of many of the leading municipalities. As long as drainage wells, as they have been known heretofore, are allowed to exist they will constitute an unusually dangerous public health hazard. A study completed in November by the Bureau of Sanitary Engineering realistically portrayed the potential public health hazard which exists in the use of drainage wells. Abundant evidence of ground water contamination by wells and sink holes was found.

During 1941 a drainage well code was formulated and passed by the State Board of Health. Of course this does not solve the problem, but it is certainly a step in the right direction. The ultimate desire of the department and right thinking persons generally is the complete elimination of drainage wells. For the past year the policy has been to allow no drainage wells for sewage or industrial wastes unless the effluent is treated in a manner satisfactory to the department. Wherever possible wells have been drilled and cased to salt water. The only permits issued in 1941 have been for surface drainage, swimming pool water, cooling water, and two for industrial wastes.

The following is a list of counties with the number of drainage wells drilled in the past year:

| | | | |
|---|---|---|---|
| Broward | 1 | Lake | 1 |
| Dade | 26 (24 to salt water) | Orange | 6 |
| Polk | 2 | Marion | 2 |

## SWIMMING POOLS

Rosenau states, "The swimming pool is a good example of an institution devised to improve hygienic conditions, yet one wherein the device itself may be a hygienic menace". As athletics and recreation became more widespread the problem of swimming pool sanitation became more acute. Diseases spread through this medium are inflammatory infections of the upper respiratory tract; injury and inflammation of the ears; dermatosis and intestinal infections. The source of the infection comes in almost all instances from persons using the pool.

Early in 1941 the Swimming Pool Code was passed by the State Board of Health. Responsibility for approval of plans and specifications, as well as operation, was placed with the Bureau of Sanitary Engineering. One of the most outstanding accomplishments of the year in attempting to control the sanitary quality of swimming pool water has been the provision for chlorination on a large number of pools as required by the Code.

Better review of plans and specifications than heretofore has brought to light numerous cross-connections and other undesirable physical features. Taking everything into consideration, it is the opinion of the Bureau of Sanitary Engineering that definite progress in swimming pool sanitation was made during the year, however, much remains to be done.

The following is a list by cities of new pools constructed during 1941:

| | |
|---|---|
| Arcadia | 1 |
| Gainesville | 1 |
| Hobe Sound | 1 |
| Lake City | 1 |
| Miami | 1 |
| Miami Beach | 10 |
| Sanford | 1 |
| Tampa | 1 |

| | |
|---|---|
| Total permits issued in 1940 | 89 |
| Total permits issued in 1941 | 108 |
| Number permitted pools in 1941 with chlorination | 33 |

(Balance all notified that chlorination must be provided by June 1, 1942.)

Seven permits for pools which were permitted in 1940 were held up in 1941 for non-compliance of the Code.

## MALARIA AND MOSQUITO CONTROL DIVISION

During the year 1941, only two malaria control programs, involving permanent drainage operated in the state. The Escambia County Malaria Control Program continued to operate under the direction of Dr. J. E. Elmendorf of the Rockefeller Foundation staff. A permanent malaria control drainage program operated in Gadsden County until the Works Project Administration closed it down because it did not have defense certification.

A semi-monthly report of activities on malaria control drainage is submitted to the Public Health Service.

A program of mosquito-proofing the home has been developed in co-operation with the Farm Security Administration and the local health departments in the counties where the work is undertaken.

Efforts have continuously been made to have the W.P.A. remove their regulations prohibiting mosquito-proofing of homes with their labor, but no results have been accomplished thus far.

## DEFENSE CONTROL WORK

During the present emergency practically all malaria and mosquito control works, both drainage and larvicide within Army and Navy reservations, are technically the responsibility of the military and naval authorities, and the works outside are under the direction of the State Board of Health. Actually, most of the military authorities have welcomed the engineers and other health officials to organize and supervise the work within the camps. This has been very helpful in the drainage programs because otherwise the engineers of the health department would not have been able to coordinate their drainage projects with reference to the drainage in the camps so well. Many ponds and swamps off the reservation must be drained through the reservation, thus making one complete project.

The military and naval authorities are providing funds for both labor and material for work inside the area, but in many places, projects have been submitted and approved using these funds as contribution with the state health departments acting as sponsors. Outside the reservations, the W.P.A. is technically furnishing all labor and material.

Larvicidal programs adjacent to all defense bases were set up during April under the supervision of the state health departments, and maintained through funds provided by the U. S. Public Health Service.

This program consisted of mapping, collection of entomological data, and larviciding the one-mile zone adjacent to the barracks or building section of the reservation. This in most instances covered the one-mile zone outside of the reservation.

On July 1, the financial authority for the operation of this program was transferred from the U. S. Public Health Service to the Work Projects Administration. Considerable reorganization was necessary in all states and much valuable time lost. Between July 20 and the week of August 11, the program was resumed and continued through the breeding season with transportation and additional technical personnel furnished the states for supervision by the Public Health Service; labor, material, and larvicide were furnished by the W.P.A.

On November 7, 1941 a meeting of all members of the Bureau and personnel assigned to this Bureau by the U. S. Public Health Service engaged in mosquito control activities in and adjacent to the defense area was called for the purpose of discussing and planning the activities to be carried on during the winter.

Preparation for the next season control program was outlined and planned. The program as outlined called for accurate topographical maps of each defense area. This includes the military, naval or war industry bases and the one-mile zone around each. These maps included all breeding areas, water surface areas, (permanent or temporary) and all data relating to breeding areas. On these maps were spotted adult catching stations and all data necessary to establish a yardstick as a means of efficiently guiding both present and future control operations.

Since the inauguration of the Bureau of Malaria Control within the organization of the State Board of Health July 1st, 1941, the function of the Bureau of Sanitary Engineering with relation to the entire subject of malaria and its control will consist of supervision of technical phases of installation of drainage systems and fill programs when these are elected by the Bureau of Malaria Control as control measures.

## ENVIRONMENTAL SANITATION

On February 1 Mr. S. D. Macready was appointed Sanitation Consultant. The program of the Sanitation Consultant consists of co-ordinating local sanitation activities so that in the end a well balanced program of environmental sanitation will result in each county. This program is to provide training program planning and advisory services to the local county health departments. During the year ninety-nine visits to local county health departments for such purposes have been made.

Emphasis, so far, has been confined to training in elementary procedures and processes and this has been found necessary with many of the older men in the county health departments as well as the new. Attention has been given in all cases to specialized duties such as swimming pools, tourist camps, foods, food handling inspection, etc.

Definite program planning has not been possible this year because of the need for training outlined. An appraisal system by means of local programs will be set up on a basis of individual county needs. It has been prepared and plans are made for it to be in operation as soon after the first of the year as possible. A standardized plan for the local inspection of restaurants and food handling establishments employing a Gold Seal of Approval for meeting the requirements of Chapter X of the State Sanitary Code was prepared during the spring. Preliminary work has already started in Bay, Franklin, Nassau and Osceola Counties. Progress has been slow due to the magnitude of the job which requires a great amount of educational work with health department personnel as well as with the industry. This Gold Seal of Approval plan can be extended to other fields as it is found desirable.

With further reference to local food sanitation programs, the Short Course for Sanitarians at the University of Florida during 1941 was quite successful in this particular field.

A revision in the issuance and re-issuance of permits on an annual basis has been made. The re-issuance of these permits has been time-consuming and devoid of public health significance. Under the new policy, permits will be issued on accurate data collected or the various activities requiring permits and this permit will be for the duration of time that the activity maintains sanitary standards commensurate with those set forth in the State Sanitary Code.

The status of the various permit activities for the year to date is as follows:

*Tourist Camps—*

| | |
|---|---|
| Permits issued, 1940 | 688 |
| Permits issued 1941 | 677 |

The record shows eleven permits less this year than last. Twenty-seven have been refused for non-compliance with the State Sanitary Code, and eighty-one camps having permits in 1940 have not been inspected yet this season because they are in tourist sections and have only just opened. On this basis the complete total for 1941 should be:

| | |
|---|---|
| Permits issued | 677 |
| Permits pending | 27 |
| Camps to be inspected | 81 |
| Total | 785 |

The above shows an approximate increase in the number of camps involved over 1940 of 14.1 per cent.

*Canning and Preserving Plants*

| | |
|---|---|
| Permits issued 1940 | 129 |
| Permits issued 1941 | 82 |

Tomato and citrus plants are just opening and inspection of them has been assigned to a field representative. No actual decrease in plants permitted this year is anticipated.

*Bottled Water Plants*

| | |
|---|---|
| Permits issued 1940 | 49 |
| Permits issued 1941 | 31 |

These totals are inherited and a complete survey of all bottled water plants in the state is proposed the first of the year.

In November a Filling Station Sanitation Program was inaugurated at the suggestion of Mrs. Holland, wife of Governor Holland. This program was carried out with the cooperation of all the oil companies and the county and city health departments, all pledging their assisttance for the completion of the program. At the end of the year there had been a total of 2,600 filling station inspections. This program will continue as a routine procedure of the Bureau of Sanitary Engineering.

During the year 1941 a program was inaugurated by which the Bureau in cooperation with the Federal Housing Administration, will approve all installations for each case where the sewage disposal is by septic tank or on each case where a private well is to be used. This approval must be obtained from an authorized agent of the State Board of Health and/or the State Board of Health. It must also clear through the Bureau of Sanitary Engineering before the final committment is made by the Federal Housing Administration.

## MILK

At the beginning of the year 1941 the aims and purposes of the milk division of the Bureau of Sanitary Engineering and some of the goals which we endeavored to reach are listed below:

1. To standardize milk control in Florida by promoting the adoption of the U. S. Public Health Service Milk Ordinance throughout the State.
2. To make the Grade "A" Pasteurized label mean exactly what it implies by improving methods of pasteurization.
3. To increase pasteurized milk consumption.

4. To make raw milk as safe as possible by improving enforcement of local ordinances and by keeping a close check on the health of the milking herds.

5. Endeavor to maintain as many cities in the list of cities making 90% or better on their milk sanitation ratings, but also to have our supervisory inspection service of such a nature that when these ratings are made, we are sure that the cities that are accorded this distinction really merit this honor.

6. To cooperate fully with defense force officials in protecting the milk supplies which are used by Army and Navy personnel.

7. To cooperate closely with the U. S. Public Health Service in protecting milk supplies being used on common carriers.

8. To evaluate from time to time the milk sanitation status of the areas working under the Standard Milk Ordinance and present the results in the form of an official milk sanitation rating to the city officials directly concerned.

9. To assist in training new milk inspection personnel as it is added to already established units or as new counties come under full-time county health service.

10. To work out if possible a plan by which an annual refresher course in milk sanitation could be made available to all inspection personnel throughout the state.

11. To evolve a plan for the licensing of milk plant machinery operators on a voluntary basis.

The first goal that we had hoped to attain as set forth in our program has developed to a degree that is most worthy of mention. The State Department of Agriculture has joined hands with the State Board of Health in the promotion of the Standard Ordinance on a state-wide basis according to the following agreement:

*IT IS AGREED BY THE STATE DEPARTMENT OF AGRICULTURE AND THE STATE BOARD OF HEALTH THAT:*

1. *The Standard Ordinance and Code of the United States Public health Service, together with all rules, regulations, forms, and blanks pertaining thereto, are adopted as governing the production, processing, and distribution of all milk and milk products offered for sale in the State.*

2. *Complete coordination of functions will be established through:*

   a. *Cross-exchange of all data.*

   b. *Joint cooperation with the personnel of local health units, both county and city.*

      *Item (I)—It is suggested that, whenever possible, notice of inspection itineraries be forwarded to all interested parties.*

   c. *Deputization of the milk inspectors of the Department of Agriculture as Deputy Milk Sanitarians by the State Health Officer, giving them authority over dairies, milk and milk products under the provisions of the State Sanitary Code Law (Chapter 19366, Laws of Florida, Acts of 1939) withheld by 14672, Laws of Florida, Acts of 1931.*

   d. *Reconciliation and establishment of policies and regulations by the State Health Officer and the Commissioner of Agriculture.*

*Item (1) No public expression will be made of opinions on policies, regulations or information acquired in official capacities by the representatives of the two departments.*

*Item (2) Surveys of local milk supplies and milk sheds will be made jointly by the State Department of Agriculture and the State Board of Health at the request of local governing bodies. Results thereof will be transmitted directly to the body requesting the survey after approval is given by the State Health Officer and the Commissioner of Agriculture, who alone will be responsible for public release of such information.*

| | |
|---|---|
| *Approved:* | *Approved:* |
| (Signed) W. H. PICKETT, M.D.<br>*State Health Officer* | (Signed) NATHAN MAYO,<br>*Commissioner of Agriculture* |

This agreement is one of the most progressive steps taken in the field of milk sanitation to date, and we feel that with the cooperative program now under way, that Florida in the near future will stand foremost in the country in its milk sanitation program.

The most intensive efforts of the milk division have been directed towards improving pasteurization procedures throughout the state. At the beginning of the period covered by this report, a great many distributors were not processing and handling pasteurized milk in a manner commensurate with the label "Grade A Pasteurized Milk". Much equipment necessary for the proper pasteurization of milk was lacking and the handling procedures following the processing of the milk were not in keeping with good practice. Many consumers in the state were blindly accepting the pasteurized label at face value without question. Throughout this year every effort has been made to bring to the attention of the public, the fact that a great difference exists between *so-called* pasteurized milk and *properly* pasteurized milk. Every effort has been made to impress upon the distributors the importance of proper pasteurization and protection against subsequent contamination and also the necessity of keeping complete records of their operations. Throughout the year the demand for properly pasteurized milk has increased and all of the dairymen have met this demand most cooperatively to a very marked degree.

The third goal of increasing pasteurized milk consumption throughout the state has been attained to a highly satisfactory degree. The increase is largely due to the influx of families of defense forces, but not entirely so. The educational programs in the schools and press and over the radio played its part in increasing pasteurized milk consumption. The demands for pasteurized milk by the military and naval authorities also materially increased consumption. Lastly, increased public confidence also played its part in increasing consumption of the pasteurized product. The sum total of all this was an increase of approximately 30% in the consumption of pasteurized milk over the state.

The fourth goal in making raw milk as safe as possible by closer attention to the health of milking herds received a severe setback largely by action of the U.S.B.A.I. and the State Livestock Sanitary Authority in abolishing the compulsory Bangs test within the state. The State Board of Health and all local milk regulations require that herds producing milk for consumption in the raw state be from Bangs tested herds, but this arrangement is not nearly as effective as the system formerly in operation. Another health hazard not fully recognized by the populace as a whole is the hazard created by the untested family cow. This problem is receiving close attention from state and local milk control officials.

The fifth goal by which the State Board of Health attemped to enhance the meaning and the prestige of the Standard Ordinance has progressed steadily and rapidly. The action of this department in removing twenty Florida cities from the official list of Standard Ordinance cities in 1940 served in good measure towards this accomplishment. The disrepute of the Standard Ordinance in Florida in years past was due largely to these cities which adopted the ordinance without any health set-up or arrangements for the proper ordinance enforcement. Today the State Board of Health operates under the policy of removing any city which does not, on an official survey of its milk supply, make the necessary rating to be maintained on the official Standard Ordinance list. We strongly recommend against the adoption of the Ordinance by any city where there is not adequate provisions made to do a good job of Ordinance enforcement.

This Bureau has cooperated with the military and naval authorities and has answered every request from these government officials for help in determining the sanitation status of milk supplies furnished Army and Navy bases. It is needless to list the bases covered in this report as this Bureau has contacted every base within the state.

The Bureau of Sanitary Engineering, at the request of the U. S. Public Health Service, keeps constant tab on all distributors supplying milk and milk products to common carriers. Permits to sell milk and milk products to common carriers are required of these distributors. Before these permits are issued by the U. S. Public Health Service, the approval of the supply must first be secured from the Florida State Board of Health. Only those supplies meeting the standards of the U. S. Standard Milk Ordinance for "Grade A, Pasteurized Milk" are approved.

Work on defense milk supplies prevented the routine rating of every city in the state operating under the Standard Milk Ordinance and Code. Defense work in every instance took precedence over state and local programs during the year.

The policy of the Bureau of Sanitary Engineering has been at all times to keep the milk control programs local in nature. Our milk consultant aided the local health officials in their individual programs, assisted them in the development of milk supplies and the scoring of the dairies. Our service to health officials has been purely advisory as it is the preorgative of local officials to enforce the local milk regulations. During this year, at the request of the local health officers, we have conferred with them regarding suitable regulations to govern milk production and distribution in their respective areas and have assisted them in the training of milk inspection personnel. Before turning the milk programs over to our county sanitarians, our representative has spent sufficient time with them in the field to thoroughly acquaint them with the Standard Ordinance procedures and to familiarize them with the use of the Standard Ordinance Score Sheet for dairies and milk plants.

Two milk seminars were held during the year for the benefit of all sanitarians in the area. One was conducted in connection with the Defense School held in Gainesville, which started June 1, 1941 and lasted for six weeks. The second was a two-day seminar held in connection with the Florida Public Health Association meeting on December 1 and 2, 1941 at Orlando. About thirty-six sanitarians attended these meetings. We have not as yet taken any direct step towards making these seminars annual affairs. We feel, however, that when and if it is done it will have to be accomplished by working in cooperation with the University of Florida.

There is a crying need for capable milk plant machinery operators throughout the state. Pasteurization is essential for the proper protection of public health. It is a highly technical operation and should *not* be entrusted to unskilled hands. The fact remains, however, that throughout the state unskilled labor is charged with the responsibility of properly processing the milk supply. In far too many cases proper pasteurization is not accomplished and the consumer of this so-called pasteurized milk is laboring under a false sense of security.

In the spring of 1940 the Bureau of Sanitary Engineering took the initial step toward a licensing system in Florida for milk plant machinery operators. Information on licensing systems in other states was secured and these systems were studied and discussed with the management of the larger dairy concerns in Florida and with the health officers and dairy supervisors in the larger cities of the state. The consensus at that time was that action should be delayed but that when the step could logically be taken that the system would of necessity have to be operated on a voluntary basis. The national emergency has indefinitely postponed any action whatsoever along these lines but after the emergency has passed this idea will be taken up again and vigorously promoted.

## SHELLFISH

During the year the following inspections of seafood producing plants were made:

| | |
|---|---|
| Oyster shucking houses | 351 |
| Shell stock houses | 62 |
| Crab meat plants | 290 |
| Lobster meat plants | 18 |
| Scallop houses | 52 |
| Clam plants | 16 |

State Board of Health permits for ten oyster shucking houses were revoked and cancelled for failure to comply with sanitary requirements. In four of those cases after revocation of permits, the requested improvements were made by the owners and the permits were re-issued. Five at Port Orange resumed operation at the beginning of the 1941-42 season.

Three crab meat houses were condemned and permits revoked.

During April, 1941, several cases of typhoid fever developed in and near Volusia County and investigations indicated that boot-leg oysters from the Halifax River were the cause. In order to protect the certified oyster dealers in Volusia County, all permits of the five shucking houses at Port Orange were revoked and cancelled in April. This action was agreed to by all interested producers.

For the purpose of securing information regarding shellfish in other states and in the attempt to standardize the shellfish program of the Bureau of Sanitary Engineering, the Shellfish Consultant visited New York, Massachusetts, Maine, Connecticut, New Jersey, Maryland, Washington, D. C., Virginia, North Carolina and South Carolina. Observations and conclusions of this trip may be itemized and outlined as follows:

1. In most of the states the Conservation Department patrols contaminated shellfish areas. Unfortunately, we have not patrolled our contaminated areas as much as we feel necessary for the protection of these areas.
2. Many states devote considerable time and attention to bacteriological investigations of shellfish. This Bureau, in cooperation with the Bureau of Laboratories, is inaugurating a program of bacteriological investigations of all shellfish and beds from which they are gathered.
3. The minimum regulation of the United States Public Health Service, requiring sealing of shellfish cans to be in such a manner that the cans cannot be tampered with is enforced rigidly in Florida but there was a preponderence of oysters coming into the state from other states in containers not properly sealed.

In September attractive two-color steel warning signs were purchased. These signs were lettered as follows:

*WARNING!*

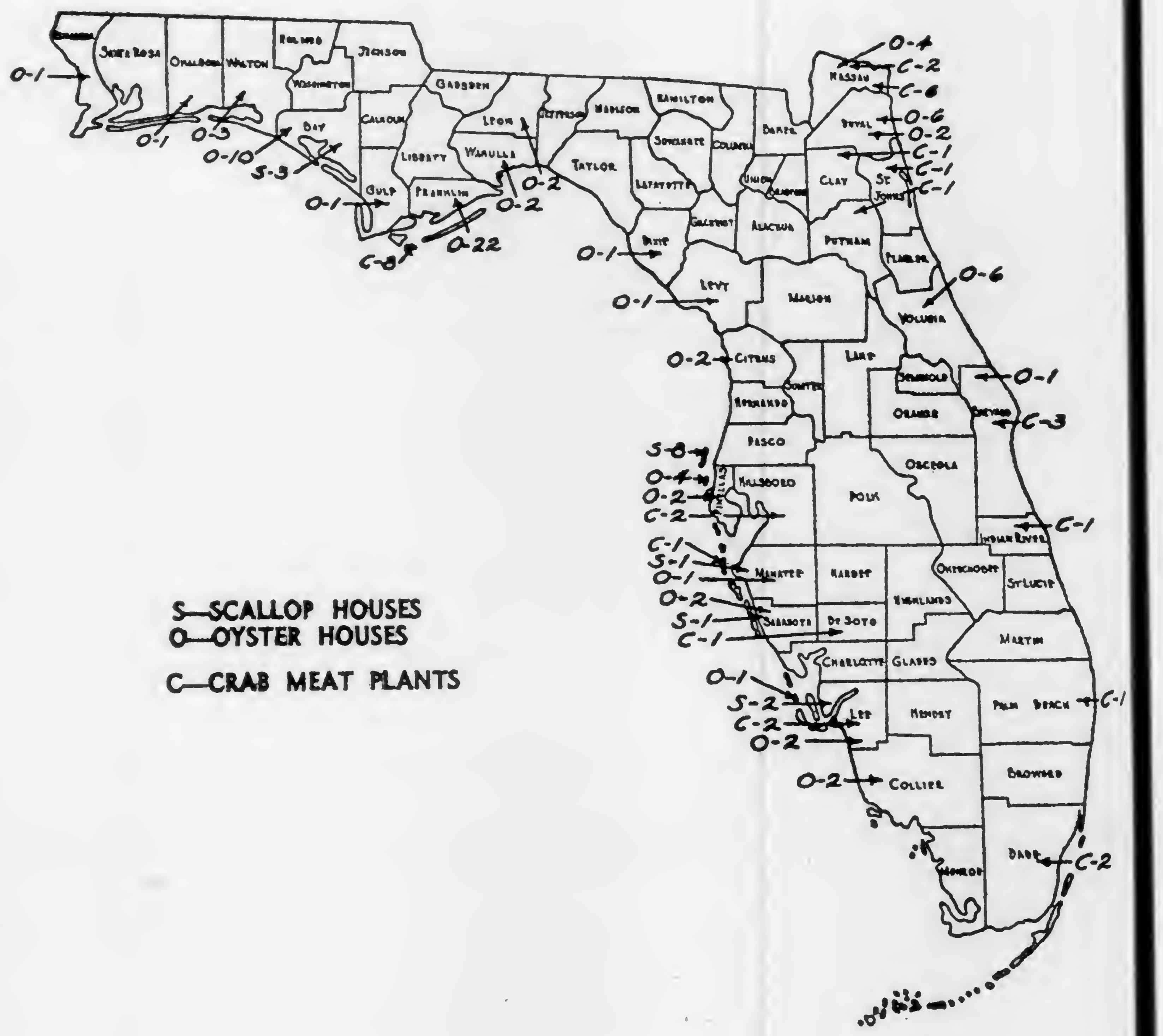
POLLUTED SHELLFISH TRANSMIT DISEASE
OYSTERS OR CLAMS TAKEN FROM THIS
AREA SHOULD NOT BE USED AS FOOD.

FLORIDA STATE BOARD OF HEALTH
STATE BOARD OF CONSERVATION

Penalty for removal or defacement— $100 Fine

## MAP 1. LOCATION BY COUNTIES OF SHELLFISH PLANTS IN FLORIDA

### December 31, 1941



**TOTAL SHELLFISH PLANTS IN OPERATION, DECEMBER 31, 1941**

| | |
|---|---|
| Oyster Shucking Houses | 61 |
| Shell Stock Oyster Houses | 18 |
| Crab-Meat Plants | 29 |
| Lobster Meat Plants | 3 |

Signs have, so far, been erected on condemned areas in the St. Johns and Amelia Rivers and waters adjacent to St. Petersburg.

This Bureau, before the opening of the present oyster season, notified the authorities of all states in which oysters are produced that these minimum requirements would be enforced in Florida.

During the month of July the Shellfish Consultant lectured on Shellfish Sanitation to the Defense Sanitation Class held at the University of Florida in Gainesville.

During the fall a representative of the United States Public Health Service made a tour of inspection to the oyster houses in Florida. A report was received which read in part as follows:

"It is gratifying to note that a number of improvements in plant equipment and construction, which will improve the sanitary quality of the packed product, have been made since the previous season. Probably the most outstanding improvement along these lines is the elimination of all overboard toilets along the waterfront at Apalachicola, Florida. These have all been replaced with water flush toilets which are connected to the city sewer."

The sale of unapproved oysters or boot-legging was greatly reduced during the year as compared with previous years. This reduction has been brought about by the cooperation of shellfish inspection department of the Bureau of Sanitary Engineering, the county sanitary officers, the city sanitary inspectors and deputy conservation officers throughout the state.

As often as possible inspections have been made of oyster and crab meat offered for sale to the public by dealers and these inspections were made in cooperation with the county sanitation officers and various city food inspectors.

As of December 31, 1941, there were nine new oyster shucking houses in operation in the state as compared with the number of shucking houses at the close of the season, April 15, 1941. Six new crab meat plants were erected during the year. Map 1 shows the location by counties of oyster houses, crab meat houses and scallop plants. Table 3 is a tabulation showing the number of each of the above plants in various counties in the State.

TABLE 3.—TOTAL SHELLFISH PLANTS IN FLORIDA, DECEMBER 31, 1941.

| COUNTY | OYSTER SHUCKING HOUSES | Oyster Shell Stock Plants | CRAB MEAT PLANTS | LOBSTER MEAT PLANTS | SCALLOP PLANTS |
|---|---|---|---|---|---|
| Escambia | | 1 | | | |
| Okaloosa | 1 | | | | |
| Walton | | 3 | | | |
| Bay | 1 | 9 | | | 3 |
| Gulf | 1 | | | | |
| Franklin | 22 | | 8 | | |
| Wakulla | 1 | 1 | 1 | | |
| Leon | 1 | 1 | | | |
| Dixie | 1 | | | | |
| Levy | 1 | | | | |
| Citrus | 2 | | | | |
| Pinellas | 4 | | | | 8 |
| Hillsborough | | 2 | 2 | | 2 |
| Manatee | 1 | | 1 | | 1 |
| Sarasota | 2 | | | | 1 |
| Charlotte | 1 | | 1 | | |
| Lee | 1 | 1 | 2 | | 2 |
| Collier | 2 | | | | |
| Dade | | | | 2 | |
| Palm Beach | | | | 1 | |
| Indian River | | | 1 | | |
| Brevard | 1 | | 3 | | |
| Volusia | 6 | | | | |
| Putnam | | | 1 | | |
| Clay | | | 1 | | |
| St. Johns | 2 | | | | |
| Duval | 6 | | 6 | | |
| Nassau | 4 | | 2 | | |
| TOTAL | 61 | 18 | 29 | 3 | 17 |

# VITAL STATISTICS

EDWARD M. L'ENGLE, M.D., *Director*

For reasons given in previous reports, the Bureau of Vital Statistics has continued to publish its detailed report separately from the report of the State Board of Health. The 1940 report is published in a separate volume. This report merely touches the highlights of the activities of this Bureau during the year 1941 and figures given for 1941 are provisional.

The recorded birth rate for 1941 was 18.9, the highest rate since 1928. The recorded death rate was 12.0, the same as for 1940. Marriages and divorces registered an all time high since central registration was inaugurated in 1927. There were 36,777 marriages recorded in 1941, an increase of 4,068 over the previous year and 11,983 divorces, an increase of 922 over 1940.

However, the outstanding feature of the year 1941 was the overwhelming demand for birth data brought about by the defense program and later by the declaration of war. The increased demand for birth certificates began to be felt about June, 1940, and has continued to increase at a rapid rate since then so that the difference in the total requests between 1939 and 1941 would be much greater than that shown between 1940 and 1941.

In April, 1941, a new system for filing delayed birth certificates was adopted after numerous consultations with United States officials and the registrars of the various states. The Federal officials required that certain kinds of written evidence be presened before a birth certificate could be issued. Before that time, birth certificates were based on affidavits. The difference of 12,045 requests for birth data between 1940 and 1941 does not by any means tell the whole story. It is probable that four times as much correspondence is required now for the issuance of a delayed certificate as was required under the former procedure so that the 12,000 difference in requests really represents a 48,000 increase in the amount of detail work necessary in processing the certificates. This is only one of the functions of the Bureau. The routine statistical work has increased with the increase of population, even the transient population, both military and civil, since these people also occasionally die and have babies.

This has put an almost impossible burden on the Bureau and has necessitated a marked increase in personnel which has now reached about the limit possible with the space available. Such increase has only been accomplished by putting on two shifts of workers, one shift working at night after the main office force has gone home.

Another unusual demand on our time has resulted from the birth registration check made by the Census Bureau in connection with the 1940 Federal Census. The Registration Inspector spent much of her time which is usually given to other necessary duties in checking the Census reports of apparently unregistered births which were reported by the Census Bureau during the four months period chosen for the test. The results of the test indicated that approximately 10% of the births occurring in Florida are not reported by the attending doctor or midwife. The failure to report seems to be chargeable about equally between the two. Among the doctors, it is apparently only a comparatively small group who are habitually delinquent. It is recommended that those persons whether doctors or midwives, who are habitually delinquent in complying with the provisions of the law imposing on the attendant at birth the obligation to report such birth within ten days, be prosecuted. Every child born in this state is entitled to a birth certificate.

At the present writing, the limit of requests for birth data seems not to have been reached. Not only has the burden of work been overwhelming but also the lack of appreciation on the part of the public of the necessity for the procedure adopted and of the excessive demand for data, has been very discouraging.

The transfer of the responsibility for the registration of doctors and practitioners of the healing arts to another bureau, which occurred in 1941, was a welcome, though only a slight relief in view of the tremendous increase in other demands.

I wish to commend most highly the loyal cooperation of the entire office force in their willingness to spend extra hours on their work daily in order to complete the job. Without that, it would have been impossible to carry on.

# ACCOUNTING

G. WILSON BALTZELL, *Auditor*

The amounts listed below represent appropriations and funds made available for health services for the fiscal year beginning July 1, 1940 and ending June 30, 1941.

LEGISLATURE 1940:

| | | |
|---|---|---|
| Salaries | $103,500.00 | |
| Necessary and Regular Expenes | 121,500.00 | |
| Maintenance of County Health Units | 50,000.00 | |
| Prevention of Venereal Disease | 38,000.00 | |
| TOTAL | | $313,000.00 |

CONTINUING APPROPRIATIONS:

| | | |
|---|---|---|
| Centralization of Marriage and Divorce Records | $ 26,992.25 | |
| Registration of Doctors, Midwives, etc. | 4,386.00 | |
| Birth and Death Certificates | 13,706.23 | |
| Drug Store Inspection | 7,940.00 | |
| TOTAL | | $ 53,024.48 |

FEDERAL FUNDS:

| | | |
|---|---|---|
| U. S. Public Health Service—Title VI of Social Security Act | 177,100.00 | |
| U. S. Public Health Service—Venereal Disease Control | 88,200.00 | |
| Children's Bureau—Maternal and Child Health | 111,181.00 | |
| TOTAL | | $376,481.00 |

| | | |
|---|---|---|
| ROCKEFELLER FOUNDATION—Division of Malaria Research (Calendar Year 1940) | | $ 14,000.00 |
| Rockefeller Foundation — Malaria Control — Escambia County | 2,435.69 | |
| Escambia County — Malaria Control — Escambia County | 1,250.00 | |
| City of Pensacola — Malaria Control — Escambia County | 1,250.00 | |
| TOTAL | | $ 4,935.69 |

TABLE 1.—RECAPITULATION OF DISBURSEMENTS, JULY 1, 1940 TO JUNE 30, 1941.

| | STATE | U. S. P. H. S. | | STATE | | OTHER AGENCIES | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | TITLE VI | VENEREAL DISEASE | VENEREAL DISEASE | CHILDREN'S BUREAU | NAME | AMOUNT | LOCAL* | TOTAL |
| 1. Administration | 36,552.43 | 10,304.03 | 1,080.00 | 1,140.00 | 1,380.00 | Fee Accts. | 128.66 | | 50,585.12 |
| 2. Laboratories | 63,966.99 | 20,303.75 | 12,106.25 | 4,209.49 | ........ | | | | 100,586.48 |
| 3. Engineering | 33,858.98 | 21,323.40 | ........ | ........ | ........ | | | | 55,182.38 |
| 4. Vital Statistics | 32,331.52 | 2,850.00 | ........ | ........ | ........ | Fee Accts. | 36,075.02 | | 71,256.54 |
| 5. Epidemiology | 7,288.36 | 9,073.78 | ........ | ........ | ........ | | | | 16,362.14 |
| 6. Local Health Service | 6,074.02 | 2,765.00 | ........ | ........ | ........ | | | | 8,839.02 |
| 7. Health Education | 14,882.76 | 2,476.20 | 2,885.14 | 1,200.00 | ........ | | | | 21,444.10 |
| 8. Narcotics | 3,090.39 | 1,500.00 | ........ | ........ | ........ | Fee Accts. | 7,632.53 | | 12,222.92 |
| 9. Maternal and Child Health | ........ | ........ | ........ | ........ | 25,674.30 | | | | 25,674.30 |
| 10. Public Health Nursing | 7,694.86 | 1,551.36 | ........ | ........ | 2,919.25 | | | | 12,165.47 |
| 11. Tuberculosis | 8,482.23 | 15,107.78 | ........ | ........ | ........ | | | | 23,590.01 |
| 12. Dental Health | 2,086.90 | 3,417.74 | ........ | ........ | 5,641.23 | | | | 11,145.87 |
| 13. Venereal Disease Control | ........ | ........ | 24,963.10 | 4,864.29 | ........ | | | | 29,827.39 |
| 14. Training | ........ | 4,791.43 | 2,049.98 | 193.25 | 9,368.56 | | | | 16,403.22 |
| 15. Merit System | ........ | 976.88 | ........ | ........ | 1,292.23 | | | | 2,269.11 |
| 16. Miami Health Dept.— V.D. Clinic | ........ | ........ | 3,809.75 | ........ | ........ | | | | 3,809.75 |
| 17. Tampa Health Dept.— V.D. Clinic | ........ | ........ | 2,695.45 | ........ | ........ | | | | 2,695.45 |
| 18. Malaria Control— Escambia County | 2,066.52 | ........ | ........ | ........ | ........ | | | | 2,066.52 |
| 19. Dade County Anti Mosquito Control | ........ | 13,642.75 | ........ | ........ | ........ | | | | 13,642.75 |
| 20. Jacksonville-Duval V.D. Program | ........ | ........ | 3,993.66 | 2,216.73 | ........ | U. S. Direct | 7,579.03 | 1,415.90 | 15,205.32 |
| 21. Biologicals | 8,068.27‡ | ........ | ........ | ........ | ........ | | | | 8,068.27 |
| TOTALS | 226,444.23 | 110,084.10 | 53,583.33 | 13,823.76 | 46,275.57 | | 51,415.24 | 1,415.90 | 503,042.13 |
| Division of Malaria Research | | | | | | Rockefeller F. | 13,863.45 | | 13,863.45 |
| Insulin | Special Appropriation by Legislature | | | | | | 10,000.00 | | 10,000.00 |
| County Health Units | 51,704.07 | 68,492.58 | 41,444.62 | 29,287.19 | 59,872.05 | | | *157,296.26 | 408,096.77 |
| GRAND TOTAL | 278,148.30 | 178,576.68 | 95,027.95 | 43,110.95 | 106,147.62 | | 75,278.09 | 58,712.16 | 935,002.35† |

*Includes County Commissioners, School Boards, and Cities.

†Total disbursements exceed total allotments because unexpended balances brought forward from previous fiscal year are not included.

‡This figure is lower than usual because the U.S.P.H.S. furnished a great part of the biologicals needed in the State.

| | |
|---|---|
| Received from Counties, Cities, and School Boards | 155,093.20 |
| Insulin — Special appropriation separate from regular budget | 10,000.00 |
| GRAND TOTAL OF FUNDS AVAILABLE | $926,534.37 |

All Financial Reports are in accordance with the fiscal year of the State of Florida and the Federal Government and not the calendar year.

The following figures are evidence of the increase in activities of the State Board of Health in recent years.

| | |
|---|---|
| Total Funds Made Available 1939-40 | $826,919.08 |
| Total Funds Made Available 1940-41 | 926,534.37 |
| Increase of over 12% | $ 99,615.29 |

At the end of the fiscal year 1939-40 there were only 16 County Health Units affiliated with the State Board of Health, while at the end of the fiscal year 1940-41 there were 23, showing an increase of seven in one year.

Table 1 shows a recapitulation of disbursements by bureaus and departments. A detailed financial report consisting of 134 pages covering every department and division of the Florida State Board of Health and affiliated activities including each county health unit has been published and will be furnished on request.

# NARCOTICS

M. H. DOSS, *Director*

On January 1, 1941, by action of the State Board of Health, the enforcement of the Physicians Registration Act, (Chapter 12005 Acts of 1927) was transferred from the Bureau of Vital Statistics to this Bureau and with this act went the enforcement of the medical laws of this state. By reason of this, the duties of the Bureau were more than doubled and no additional inspectors have been added at this time.

| | |
|---|---|
| Total number of criminal cases resulting in an arrest | 87 |
| Aggregate sentences imposed by the courts | 40 years, 7 months, 17 days |
| Total amount of fines imposed | $2,825.00 |
| Total number of investigations conducted | 611 |
| Total number of violations corrected, where no legal action was taken | 159 |

### UNIFORM NARCOTIC DRUG ACT

| | |
|---|---|
| Total number of criminal cases, resulting in an arrest | 56 |
| Aggregate sentence imposed by the courts | 26 years, 4 months, 17 days |
| Total amount of fines imposed | $300.00 |
| Total number sentenced to prison | 25 |
| Total number placed on probation by the courts | 4 |
| Total number receiving suspended sentences | 8 |
| Total number sent to U. S. Narcotic Farm | 4 |
| Total number of cases pending in criminal courts | 9 |
| Total number cases discharged | 1 |
| Total number cases Nolle Prosequi | 2 |
| Total number of cases closed after death of defendants | 3 |
| Total number of investigations closed after death of suspect | 1 |

### MEDICAL PRACTICE ACT

| | |
|---|---|
| Total number of criminal cases, resulting in an arrest | 24 |
| Aggregate sentences imposed by the courts | 13 years, 3 months |
| Total amount of fines imposed by the courts | $2,325.00 |
| Total number criminal cases pending in courts | 8 |
| Total number prosecutions resulting in a mistrial | 1 |
| Total number of defendants receiving a suspended sentence | 2 |
| Total number of violations corrected where no legal action was taken | 43 |
| Total number Medical Doctors (M.D.) registered | 2546 |
| Total number Osteopathic Physicians (D.O.) registered | 493 |
| Total number Chiropractic Doctors (D.C.) registered | 233 |
| Total number Naturopathic Physicians (N.D.) registered | 243 |
| Total number Chiropodists (Chir.) registered | 104 |
| Total number of all practitioners of the healing arts registered according to Chapter 12005, Acts of 1927 | 3619 |

(The medical practice act, represents eleven months of 1941)

### DRUG AND SIGN ACT (Pharmacy)

| | |
|---|---|
| Total number of drug stores registered | 710 |
| Total number open inspections | 2801 |
| Total number arrest and prosecutions | 7 |
| Total fines imposed by the courts | $200.00 |
| Total aggregate sentences imposed by the courts | 1 year |
| Total number violations corrected, where no legal action was taken | 116 |
| Total number Licensed Pharmacists reported to State Board of Pharmacy for illegal and unprofessional acts | 2 |

### RECOMMENDATIONS

In view of the increased activities of the Bureau, it is respectfully requested that sufficient funds be provided to employ an additional field agent to be stationed at Orlando;

That travel and necessary expenses be increased sufficiently to take care of car mileage which will be necessary at an early date, since the three state cars now being used are well worn and cannot last very much longer; and

That salaries for all office and field workers be increased. The personnel of this bureau are all well qualified for many Federal positions which pay considerably more than employees of this Bureau are now making and the Bureau may at any time lose well trained and experienced personnel that would be hard to replace.

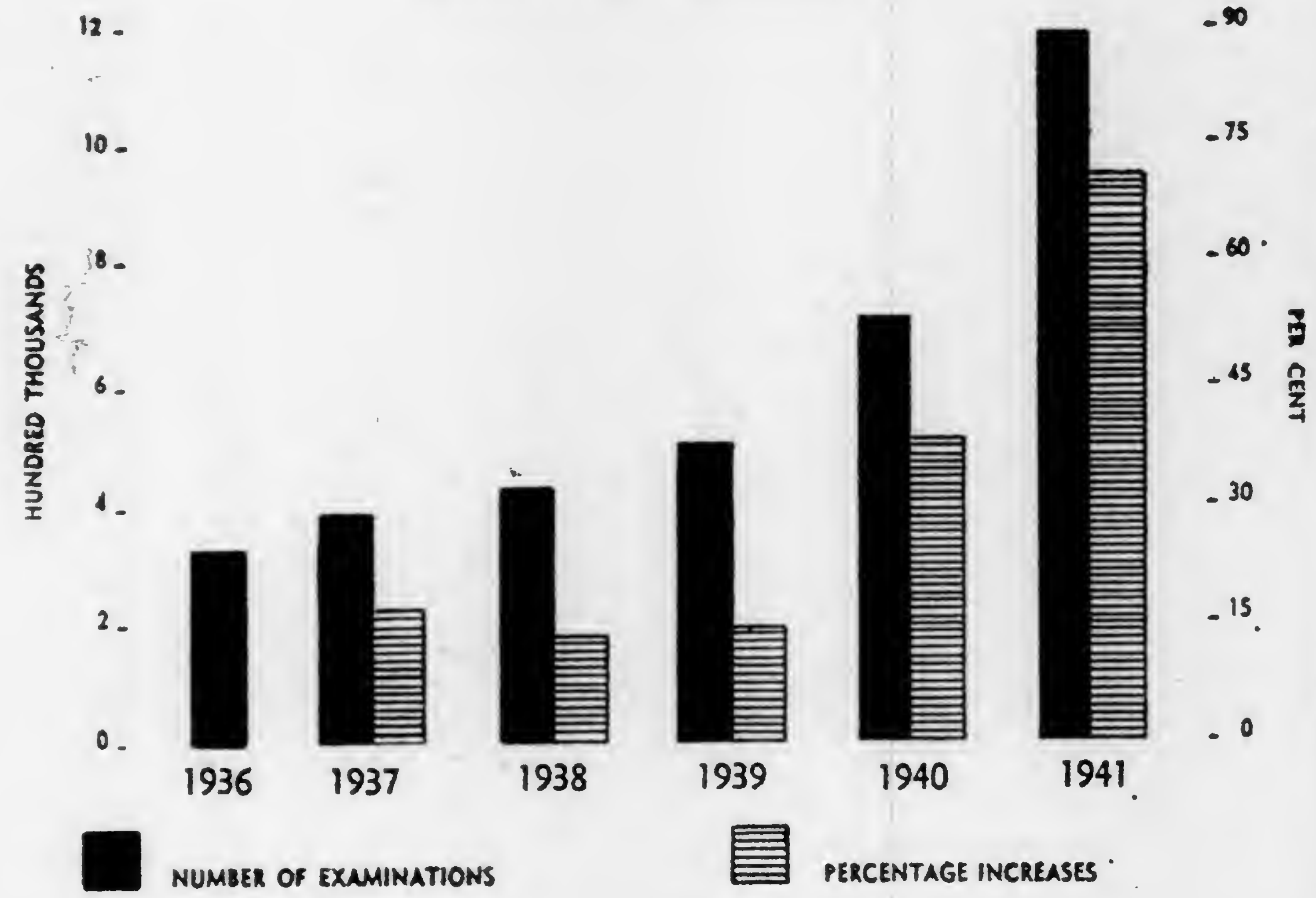
# LABORATORIES

J. N. Patterson, M.S., M.D., *Director*

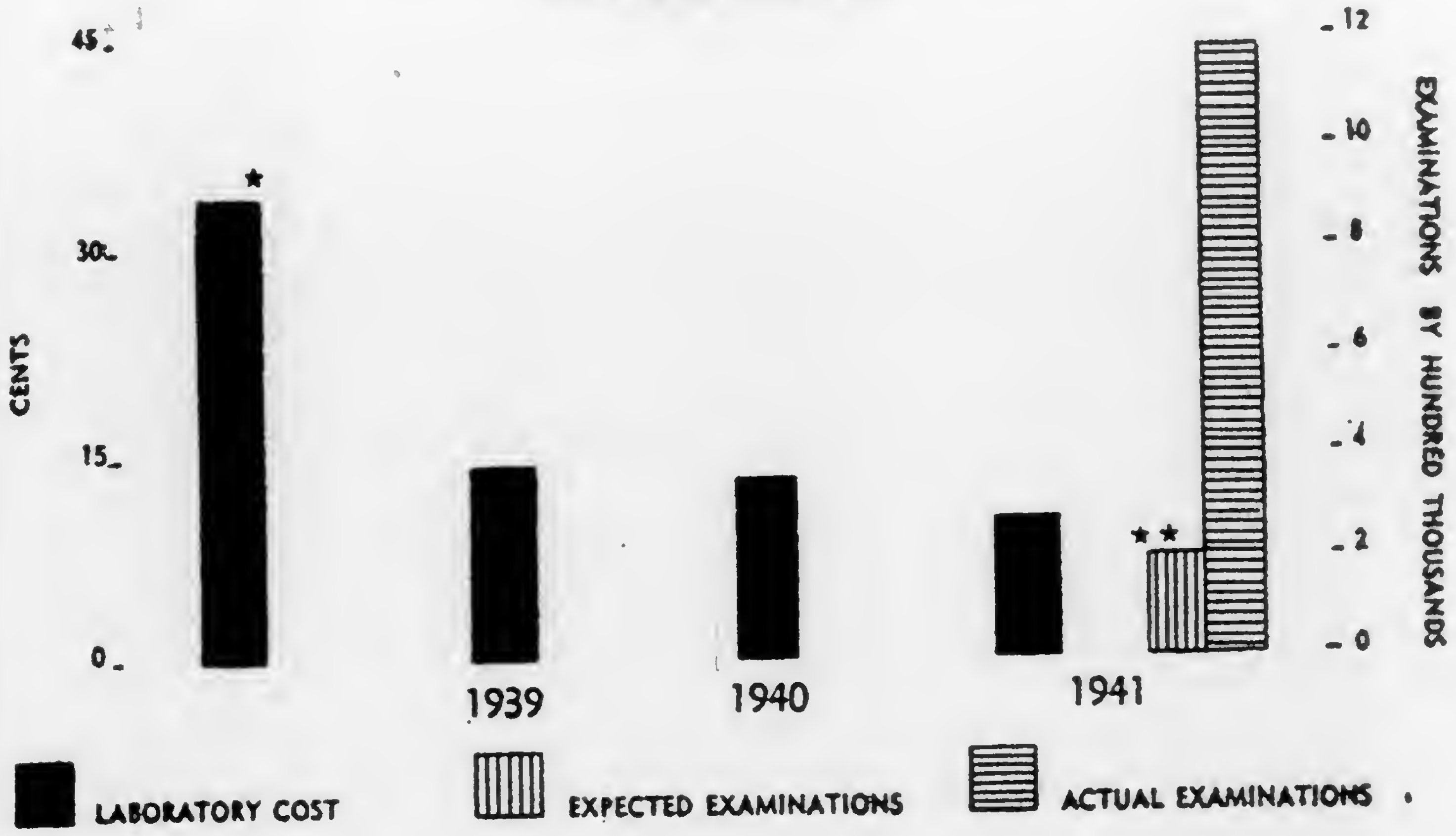
In 1941 a staggering increase in the work load of the Bureau of Laboratories occurred. A total of 1,188,612 examinations was successfully performed, despite the handicaps of insufficient personnel and cramped quarters. Since in 1940 the central and four branch laboratories made 693,779 examinations, the volume rose 71.2 per cent during the current year. As a matter of fact, the work has increased steadily since 1936, with an average increment each year of more than 30 per cent. The ability to absorb such increases is based almost entirely on the loyalty, and cooperativeness of the staff. Without long overtime hours and disregard of self it would have been impossible to handle the volume. Chart I graphically portrays the load which the Bureau of Laboratories has accepted.

According to nation-wide observations, a public health laboratory has fulfilled its obligation when it performs one examination per ten persons of the general state population each year. On this basis, and choosing 2,000,000 as a round figure for the population of Florida in 1941, it would be expected that 200,000 examinations should be made if the Bureau of Laboratories was run efficiently. Yet, actually, nearly six times this number of examinations was performed.

**GRAPH 1. TOTAL EXAMINATIONS AND PERCENTAGE INCREASES OVER PREVIOUS YEARS, BY YEARS 1936 - 1941 INCLUSIVE**



**GRAPH 2. LABORATORY COST PER EXAMINATION BY YEARS. NUMBER EXAMINATIONS FOR FLORIDA POPULATION.**



It is due primarily to the staff, from top to bottom, that so many specimens are submitted for examination. Had past work been poorly done, the Laboratories would have been held in low regard and there would be no incentive for continuing to send work to them. However, the staff has clearly proven itself, as is shown by its state and national reputation. The staff of the Bureau of Laboratories takes justifiable pride in the respect with which physicians throughout the state hold our reports. It is admitted, nevertheless, that continued work of high grade may be made difficult by the war situation. Several men have been called for duty with the armed forces and a number of the women have left for positions with greater compensation under the supervision of the federal Civil Service Commission. There is, too, a decided shortage of qualified personnel for replacements. Considering the hardships of properly administering an adequate laboratory program, it is gratifying to report that the cost of this service to the state of Florida has been driven down to a new low. The cost per examination for 1941 was but slightly in excess of 10 cents, as compared to the reasonable figure of 35-40 cents given by Smillie*. Priorities and generally rising prices may make it impossible to match this figure in the future, but a new record has been set for Florida at least. Chart II illustrates the cost trend of the last three years.

A complete breakdown of the work done is given in Tables 1-13. Table 2 summarizes the examinations of all five laboratories. A slight drop occurred in the number of specimens submitted for parasitologic examination, a total of 88,220 feces samples being received. Hookworm ova were found in 23,189 while ascaris, oxyuris, trichiuris and cestode ova were discovered in smaller numbers. Considerable attention was paid to protozoan cysts, with the result that more cases of infestation with Endamoeba histolytica, Endamoeba coli, Endolimax nana, Chilomastix mesnili and Giardia lamblia were found than is generally expected. The incidence of malaria increased a trifle, based on the finding of parasites in blood smears, since there were 462 positive slides (2.8 per cent) of 16,624 submitted.

Cultures for C. diphtheriae and streptococci totaled 18,623. The typhoid-paratyphoid-dysentery group required 8,546 cultures of blood, feces and urine. Pathogens were isolated from blood 87 times, and from feces and urine in 232 cases. There were 5,626 cultures made for M. tuberculosis and some experimental work was carried out with the fluorescence procedure. A total of 41,799 microscopic diagnoses was made for gonorrhea; 4,590 for Vincent's angina; and 264 for rabies. Miscellaneous smears and cultures numbered 1,787.

Agglutination tests were evidently increasingly popular as 30,049 were performed with 8 types of antigens. Tests run on blood specimens by the Kahn standard and Eagle macroflocculation methods reached new heights. Spinal fluids were examined by both the qualitative and quantitative Kahn techniques with the reactions of 4,129 specimens being determined. A total of 492 darkfield examinations was made for Treponema pallidum and 98 were reported positive.

In the field of sanitary analysis there were performed 29,096 bacteriological examinations of water; 14,303 of milk and milk products; and 2,224 chemical tests of water, sewage, sewage sludge, industrial wastes and the like.

Some additions and a few changes in assignment of personnel took place during 1941. The Director was made Assistant State Health Officer at the first of the year. Because most of the Director's time was then required in general administration, the position of Assistant Director and Bacteriologist in Charge of the Jacksonville laboratory was split into its component parts. The Assistant Director selected was given the responsibilities of acting for the Director whenever possible, correlating the work of the five laboratories, guiding research and investigation of new methods, standardizing techniques, leading the seminars and preparing reports. The Bacteriologist in Charge of the Jacksonville laboratory took over full supervision of microscopic work of the central unit and coordinated the activities of the divisions of bacteriology, serology, parasitology and chemistry. The turnover of persons was not large. Several new appointments were made in the positions of junior bacteriologist, senior and junior serologists and laboratory assistant. A senior serologist who had worked four years in the laboratory of Dr. R. L. Kahn was employed during the latter part of 1941. Clerks were added in the Tallahassee and Pensacola laboratories to handle the increasing duties in those cities. An associate bacteriologist was detailed to the Jacksonville laboratory by the United States Public Health Service.

Progress was made on the preparation of a standard methods manual for use throughout the laboratories. The Director and Assistant Director appeared before a number of scientific and public meetings, wrote a series of articles for publication and prepared various types of material for educational purposes. The Senior Parasitologist had several papers accepted for publication at an early date. In spite of the terrific burden of the routine examinations much investigative work was performed.

A man with a Master's degree in public health laboratory methods was placed in charge of the Tallahassee unit. By diligent efforts he succeeded in creating a distinctly favorable impression on the medical profession. All cultural procedures offered in the other branch laboratories are now available in Tallahassee. As soon as funds can be obtained for an additional worker it is planned to offer serodiagnostic services for the detection of syphilis there.

Minor additions to equipment and supplies were made during the year. A semi-automatic glassware washing machine was installed at the Jacksonville laboratory. By its use the number of persons required in the wash room was reduced and the breakage of glassware was brought down to a minimum. All in all, the washing machine paid for itself in considerably less than a year's time.

A special centrifuge head, designed by the Director and Senior Serologist, and manufactured by International Equipment Company was obtained for the central laboratory. With it a special wire rack is used in the performance of the Eagle test. Since individual handling of tubes is not necessary, much time and effort are thereby saved. Great interest

---

*Smillie, W. G. *Public Health Administration in the United States,* Second edition, 1940, p. 205.

in these accessories was expressed by other laboratory directors attending the Atlantic City meeting of the American Public Health Association.

The Pensacola laboratory was completely remodeled and modernized. Special care was taken to provide the most up-to-date layout, with convenience and accessibility stressed. By concentrating cabinets and working surfaces around the walls a great gain in space was achieved. Equipment was overhauled and placed in good working order. A large centrifuge and a shaking machine were purchased so that serodiagnostic tests for syphilis could be performed in Pensacola beginning in 1942.

A great amount of work was put on the matter of obtaining a new building for the central laboratory in Jacksonville. Blueprints and specifications were prepared and submitted to the Governor and the PWA. It is hoped that some plan to relieve the distressing lack of suitable quarters can be put into operation shortly.

TABLE I—TOTAL EXAMINATIONS MADE BY LABORATORIES—

| LABORATORY | TYPE | | | TOTAL |
|---|---|---|---|---|
| | Bacteriological | Serological | Milk and Water | |
| CENTRAL: | | | | |
| Jacksonville | 144,760 | 596,910 | 25,492 | 767,162 |
| BRANCHES: | | | | |
| Miami | 19,826 | 163,259 | 14,063 | 197,148 |
| Tampa | 45,836 | 148,552 | 2,098 | 196,486 |
| Pensacola | 13,137 | | 2,359 | 15,496 |
| Tallahassee | 10,709 | | 1,611 | 12,320 |
| ALL LABORATORIES | 234,268 | 908,721 | 45,623 | 1,188,612 |

TABLE 2.—SUMMARY REPORT OF LABORATORIES FOR YEAR 1941.

| | Positive | Negative | Doubtful | Unsat. | TOTAL | Grand Total |
|---|---|---|---|---|---|---|
| Intestinal Parasites: | | | | | | |
| Total No. Specimens Examined | | | | | | 88,220 |
| Helminths ova-Specs. Exam. | | | | | 87,291 | |
| Hookworm | 23,189 | 60,758 | | 976 | | |
| Ascaris | 1,152 | | | | | |
| Oxyuris | 565 | | | | | |
| Tapeworm | 130 | | | | | |
| Trichiuris | 484 | | | | | |
| Others | 37 | | | | | |
| Protozoan cysts-Specs. Exam. | | | | | 929 | |
| Endamoeba coli | 400 | | | | | |
| E. histolytica | 144 | | | | | |
| Endolimax nana | 16 | | | | | |
| Chilomastix mesnili | 322 | | | | | |
| Giardia lamblia | 37 | | | | | |
| Others | 10 | | | | | |
| Throat Specimens: | | | | | | |
| Diphtheria Cultures | 382 | 17,058 | | 55 | 17,495 | |
| Virulence tests | 2 | 5 | | | 7 | |
| Vincent's angina | 987 | 3,587 | | 16 | 4,590 | |
| Streptococcus | 521 | 598 | | 2 | 1,121 | 23,213 |
| Malaria: Quartan | 2 | | | | 2 | |
| Tertian | 377 | 16,126 | | 36 | 16,539 | |
| Estivo-autumnal | 78 | | | | 78 | |
| Untyped | 5 | | | | 5 | 16,624 |
| Agglutination Tests: | | | | | | |
| Typhoid, "O." Agglutinins | 105 | 4,106 | 45 | | 4,256 | |
| "H." Agglutinins | 517 | 8,014 | 306 | 114 | 8,951 | |
| Para A | 54 | 2,250 | 9 | 6 | 2,319 | |
| Para B | 121 | 2,159 | 34 | 5 | 2,319 | |
| Brucella abortus | 126 | 5,287 | 38 | 54 | 5,505 | |
| Weil-Felix | 335 | 4,666 | 79 | 8 | 5,088 | |
| Tularense | 32 | 1,563 | 9 | 3 | 1,607 | 30,049 |
| Spotted Fever | | 4 | | | 4 | |
| Cultures: | | | | | | |
| Blood— | | | | | | |
| Typhoid | 79 | 5,553 | | | 5,632 | |
| Salmonella suipestifer | 6 | | | | 6 | |
| Salmonella paratyphoid B | 1 | | | | 1 | |
| Other organisms | 1 | | | | 1 | 5,640 |
| Stool and Urine: | | | | | | |
| Typhoid | 167 | 2,568 | | 47 | 2,782 | |
| Salmonella suipestifer | 6 | | | | 6 | |
| Salmonella paratyphoid B | 12 | | | | 12 | 2,800 |
| Stool: | | | | | | |
| Bacillary dysentery | 47 | 59 | | | 106 | 106 |

TABLE 2.—SUMMARY REPORT OF LABORATORIES FOR YEAR 1941. — Continued.

| | Positive | Negative | Doubtful | Unsat. | TOTAL | Grand Total |
|---|---|---|---|---|---|---|
| Tuberculosis: | | | | | | |
| Microscopic— | | | | | | |
| Acid-fast stain | 1,441 | 9,707 | .......... | 717 | 11,865 | |
| Fluorescene stain | .......... | | | | | |
| Cultures | 29 | 5,597 | .......... | .......... | 5,626 | |
| Animal inoculation | .......... | .......... | .......... | .......... | 52 | 17,534 |
| Venereal Diseases: | | | | | | |
| Gonorrhea— | | | | | | |
| Smears | 4,802 | 35,978 | .......... | 437 | 41,217 | |
| Cultures | 162 | 1,600 | .......... | 30 | 1,792 | |
| Ophthalmia | 20 | 545 | .......... | 17 | 582 | 43,591 |
| Syphilis— | | | | | | |
| Kahn | | | | | | |
| Blood— | | | | | | |
| Evaluation Tests | 187 | 167 | 5 | 2 | 361 | 361 |
| Qualitative | 74,230 | 360,872 | 8,041 | 26,136 | 469.279 | |
| Quantitative | 761 | 34 | .......... | .......... | 795 | 470,074 |
| Spinal fluid— | | | | | | |
| Qualitative | 358 | 3,568 | 9 | 35 | 3,970 | |
| Quantitative | 159 | .......... | .......... | .......... | 159 | 4,129 |
| Eagle | | | | | | |
| Evaluation Tests | 191 | 163 | 5 | 2 | 361 | 361 |
| Blood-Qualitative | 77,770 | 337,650 | 11,410 | 6,966 | 433,796 | 433,796 |
| Darkfield | 98 | 364 | 2 | 28 | 492 | 492 |
| Chancroid | .......... | | | | | |
| Granuloma ingui- | | 10 | .......... | .......... | 10 | |
| nale | .......... | 7 | .......... | .......... | 7 | 17 |
| Rabies: | | | | | | |
| Dogs | 47 | 154 | .......... | 4 | 205 | |
| Cats | 2 | 39 | .......... | 2 | 43 | |
| Other animals | .......... | 16 | .......... | .......... | 16 | |
| Animal inoculations | .......... | .......... | .......... | .......... | .......... | 264 |
| Miscellaneous: | | | | | | |
| Smears | 99 | 1,315 | .......... | 1 | 1,415 | |
| Cultures | 119 | 242 | .......... | 2 | 363 | 1,778 |
| Leprosy | 3 | 6 | .......... | .......... | 9 | 9 |
| PHOTOELECTRIC COLORIMETRIC DETERMINATIONS: | | | | | | |
| Hemoglobin | | | | | 1,724 | |
| Protein cerebrospinal fluid | | | | | 2,198 | 3,922 |

| | No. Samples Examined | Total Number Tests Made | |
|---|---|---|---|
| WATER: | | | |
| Bacteriological | 13,367 | 29,096 | 29,096 |
| Chemical— | | | |
| Water | 245 | 891 | |
| Sewage and polluted water | 131 | 554 | |
| Sewage sludge | 7 | 35 | |
| Industrial wastes | 29 | 575 | |
| Miscellaneous | 95 | 169 | 2,224 |
| MILK PRODUCTS: | | | |
| Milk | 4,680 | 10,602 | |
| Cream | 1,274 | 1,718 | |
| Ice cream | 516 | 582 | |
| Chocolate Milk | 650 | 881 | |
| Miscellaneous | .......... | 520 | 14,303 |
| TOTAL | | | 1,188,612 |

TABLE 3.—SUMMARY REPORT OF JACKSONVILLE LABORATORY.

| | Positive | Negative | Doubtful | Unsat. | TOTAL | Grand Total |
|---|---|---|---|---|---|---|
| Intestinal Parasites: | | | | | | |
| Total No. Specs. Ex. | .......... | .......... | .......... | .......... | .......... | 55,666 |
| Helminths ova-Specs. Examined | .......... | .......... | .......... | .......... | 55,525 | |
| Hookworm | 15,399 | 37,729 | .......... | 817 | | |
| Ascaris | 794 | .......... | .......... | .......... | .......... | |
| Oxyuris | 352 | .......... | .......... | .......... | .......... | |
| Tapeworm | 82 | .......... | .......... | .......... | .......... | |
| Trichuris | 347 | .......... | .......... | .......... | .......... | |
| Strongyloides | 5 | .......... | .......... | .......... | .......... | |
| Protozoan cysts— Specs. Examined | .......... | .......... | .......... | .......... | 141 | |
| Endamoeba coli | 2 | .......... | .......... | .......... | .......... | |
| E. histolytica | 137 | .......... | .......... | .......... | .......... | |
| Endolimax nana | 1 | .......... | .......... | .......... | .......... | |
| Chilomastix mesnili | 1 | .......... | .......... | .......... | .......... | |
| Throat Specimens: | | | | | | |
| Diphtheria— | | | | | | |
| Cultures | 185 | 9,950 | .......... | 4 | 10,139 | |
| Virulence tests | 2 | 5 | .......... | .......... | 7 | |
| Vincent's angina | 149 | 943 | .......... | .......... | 1,092 | |
| Streptococcus | 108 | 206 | .......... | .......... | 314 | 11,552 |
| Malaria: | | | | | | |
| Tertian | 82 | 10,483 | .......... | 6 | 10,571 | |
| Estivo-autumnal | 45 | .......... | .......... | .......... | 45 | 10,616 |
| Agglutination Tests: | | | | | | |
| Typhoid | | | | | | |
| "H" Agglutination | 157 | 3,814 | 120 | 40 | 4,131 | |
| "O" Agglutination | 103 | 3,904 | 41 | .......... | 4,048 | |
| Para A | 3 | 784 | 1 | 4 | 792 | |
| Para B | 11 | 767 | 13 | 3 | 794 | |
| Brucella abortus | 72 | 3,456 | 35 | 52 | 3,615 | |
| Weil-Felix | 203 | 3,154 | 63 | 7 | 3,427 | |
| Tularense | 10 | 1,103 | 8 | 2 | 1,123 | |
| Spotted Fever | .......... | 4 | .......... | .......... | 4 | 17,934 |
| Cultures: Blood— | | | | | | |
| Typhoid | 73 | 4,651 | .......... | .......... | 4,724 | |
| Salmonella suipestifer | 6 | .......... | .......... | .......... | 6 | |
| Paratyphoid "B" | 1 | .......... | .......... | .......... | 1 | |
| Other organisms | .......... | .......... | .......... | .......... | .......... | 4,731 |
| Stool and Urine— | | | | | | |
| Typhoid | 146 | 2,010 | .......... | 41 | 2,197 | |
| Salmonella suipestifer | 6 | .......... | .......... | .......... | 6 | |
| Paratyphoid "B" | 11 | .......... | .......... | .......... | 11 | 2,214 |
| Stool: | | | | | | |
| Bacillary dysentery | 39 | 34 | .......... | .......... | 73 | 73 |
| Tuberculosis: | | | | | | |
| Microscopic | | | | | | |
| Acid-fast stain | 615 | 5,587 | .......... | 654 | 6,856 | |
| Cultures | 29 | 5,597 | .......... | .......... | 5,626 | |
| Animal inoculation | .......... | .......... | .......... | .......... | 52 | 12,534 |

TABLE 3.—SUMMARY REPORT OF JACKSONVILLE LARORATORY. — Continued.

| | Positive | Negative | Doubtful | Unsat. | TOTAL | Grand Total |
|---|---|---|---|---|---|---|
| Venereal Diseases: | | | | | | |
| Gonorrhea— | | | | | | |
| Smears | 2,471 | 22,433 | ........... | 308 | 25,212 | |
| Cultures | 62 | 658 | ........... | 27 | 747 | |
| Ophthalmia | 7 | 229 | ........... | 7 | 243 | 26,202 |
| Syphilis: | | | | | | |
| Kahn— | | | | | | |
| Blood, | | | | | | |
| Evaluation tests | 187 | 167 | 5 | 2 | 361 | |
| Qualitative | 52,236 | 227,369 | 4,561 | 20,808 | 304,974 | |
| Quantitative | 118 | ........... | ........... | ........... | 118 | 305,453 |
| Spinal fluid— | | | | | | |
| Qualitative | 295 | 3,164 | 7 | 27 | 3,493 | |
| Quantitative | 148 | ........... | ........... | ........... | 148 | 3,641 |
| Eagle, | | | | | | |
| Evaluation tests | 191 | 163 | 5 | 2 | 361 | |
| Blood-Qualitative | 57,875 | 219,020 | 7,391 | 3,169 | 287,455 | 287,816 |
| Darkfield | 2 | 35 | 1 | 2 | 40 | 40 |
| Granuloma inguinale | ........... | 7 | ........... | ........... | 7 | 7 |
| Rabies: | | | | | | |
| Dogs | 45 | 122 | ........... | 1 | 168 | |
| Cats | 2 | 25 | ........... | 1 | 28 | |
| Other animals | ........... | 14 | ........... | ........... | 14 | |
| Animal inoculations | ........... | ........... | ........... | ........... | ........... | 210 |
| Miscellaneous: | | | | | | |
| Smears | 65 | 73 | ........... | ........... | 138 | |
| Cultures | 96 | 176 | ........... | ........... | 272 | 410 |
| Leprosy | ........... | 5 | ........... | ........... | 5 | 5 |

PHOTOELECTRIC COLORIMETRIC DETERMINATIONS:

| | | |
|---|---|---|
| Hemoglobin | 548 | |
| Protein cerebrospinal fluid | 2,018 | 2,566 |

| | No. Samples Examined | Total Number Tests Made | |
|---|---|---|---|
| WATER: | | | |
| Bacteriological | 8,754 | 19,714 | 19,714 |
| Chemical— | | | |
| Water | 245 | 891 | |
| Sewage and polluted water | 131 | 554 | |
| Sewage sludge | 7 | 35 | |
| Industrial wastes | 29 | 575 | |
| Miscellaneous | 95 | 169 | 2,224 |
| MILK PRODUCTS: | | | |
| Milk | 862 | 3,537 | |
| Cream | 5 | 5 | |
| Ice cream | 3 | 9 | |
| Chocolate milk | 3 | 3 | 3,554 |
| TOAL | | | 767,162 |

TABLE 4. — REPORT OF CENTRAL LABORATORY AT JACKSONVILLE BY MONTHS.

| | | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total | Total Grand |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| INTESTINAL PARASITES | | | | | | | | | | | | | | | |
| Hookworm: | Pos. | 1,336 | 1,252 | 1,106 | 2,145 | 923 | 931 | 999 | 998 | 767 | 1,318 | 1,619 | 2,005 | 15,399 | |
| | Neg. | 3,040 | 2,852 | 2,746 | 3,873 | 2,837 | 2,736 | 2,566 | 2,907 | 2,220 | 3,700 | 4,193 | 4,059 | 37,729 | |
| | Unsat. | 41 | 67 | 71 | 59 | 59 | 68 | 57 | 40 | 69 | 84 | 101 | 101 | 817 | |
| Ascaris | | 28 | 86 | 86 | 66 | 100 | 86 | 48 | 60 | 50 | 69 | 67 | 48 | 794 | |
| Oxyuris | | 36 | 43 | 20 | 46 | 18 | 12 | 19 | 22 | 20 | 26 | 40 | 50 | 352 | |
| Tapeworm | | 6 | 6 | 3 | 13 | 7 | 10 | 9 | 6 | 4 | 2 | 7 | 9 | 82 | |
| Trichiuris | | 12 | 27 | 23 | 34 | 50 | 34 | 30 | 34 | 32 | 27 | 30 | 14 | 347 | |
| Strongyloides | | | | | 1 | | | | 1 | | 2 | 1 | | 5 | 55,525 |
| Protozoan Cysts | | | | | | | | | | | | | | | |
| Endamoeba Coli | | | | 1 | | | | | 1 | | | | | 2 | |
| E. Histolytica | | 20 | 18 | 13 | 20 | 19 | 6 | 10 | 3 | 7 | 17 | 3 | 1 | 137 | |
| Chilomastix Mesnili | | 1 | | | | | | | | | | | | 1 | |
| Girardia Lamblia | | | | | | | | | 1 | | | | | 1 | 141 |
| Throat Specimens | | | | | | | | | | | | | | | |
| Diphtheria: | Pos. | 15 | 3 | 5 | 13 | 6 | 7 | 8 | 8 | 14 | 32 | 31 | 43 | 185 | |
| | Neg. | 715 | 742 | 791 | 767 | 535 | 580 | 694 | 758 | 1,154 | 1,124 | 1,108 | 982 | 9,950 | |
| | Unsat. | | | | | | | 2 | | | | 1 | 1 | 4 | 10,139 |
| Virulence Tests: | | | | | | | | | | | | | | | |
| | Pos. | | | | | | | | | | 1 | | 1 | 2 | |
| | Neg. | 1 | | | 1 | 1 | | | | | | 2 | | 5 | 7 |
| Vincent's Angina: | | | | | | | | | | | | | | | |
| | Pos. | 17 | 27 | 18 | 12 | 16 | 3 | 10 | 3 | 9 | 11 | 14 | 9 | 149 | |
| | Neg. | 71 | 107 | 123 | 82 | 58 | 37 | 58 | 65 | 167 | 62 | 55 | 58 | 943 | 1,092 |
| Streptococcus | | | | | | | | | | | | | | | |
| | Pos. | 3 | 21 | 10 | 10 | 12 | 9 | 9 | 9 | 9 | 3 | 3 | 10 | 108 | |
| | Neg. | 24 | 23 | 58 | 26 | 15 | 7 | 6 | 6 | 12 | 9 | 3 | 17 | 206 | 314 |
| Malaria: | Pos. | 5 | 2 | 11 | 7 | 13 | 9 | 16 | 11 | 10 | 16 | 10 | 17 | 127 | |
| | Neg. | 621 | 562 | 655 | 709 | 942 | 1,043 | 1,170 | 1,514 | 1,123 | 963 | 637 | 544 | 10,483 | |
| | Unsat. | | 1 | 1 | | | 1 | 1 | | 1 | | 1 | | 6 | 10,616 |

TABLE 4.—REPORT OF CENTRAL LABORATORY AT JACKSONVILLE BY MONTHS.—Continued.

| | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Agglutination Tests:** Typhoid "H" Agglutinins: | | | | | | | | | | | | | | |
| Pos. | 3 | 2 | 10 | 14 | 20 | 17 | 19 | 20 | 28 | 4 | 6 | 14 | 157 | |
| Neg. | 189 | 154 | 211 | 261 | 312 | 343 | 458 | 448 | 380 | 418 | 350 | 290 | 3,814 | |
| Partial | 6 | 6 | 6 | 7 | 6 | 10 | 10 | 12 | 14 | 10 | 8 | 25 | 120 | |
| Unsat. | | 1 | 4 | 1 | | 1 | 15 | | 7 | 6 | 2 | 3 | 40 | 4,131 |
| 'O' Agglutinins: | | | | | | | | | | | | | | |
| Pos. | 1 | 1 | 9 | 12 | 18 | 12 | 9 | 14 | 16 | 4 | 3 | 4 | 103 | |
| Neg. | 192 | 157 | 210 | 265 | 310 | 350 | 470 | 449 | 402 | 424 | 354 | 321 | 3,904 | |
| Partial | | 2 | 2 | 2 | 5 | 6 | 4 | 4 | 4 | 4 | 4 | 4 | 41 | 4,048 |
| Paratyphoid A: | | | | | | | | | | | | | | |
| Pos. | 1 | 1 | | | | 1 | | | | | | | 3 | |
| Neg. | 39 | 32 | 43 | 30 | 57 | 68 | 104 | 106 | 91 | 95 | 67 | 52 | 784 | |
| Partial | | | | | | | | | 1 | | | | 1 | |
| Unsat. | | 1 | | | | | 1 | | | | | 2 | 4 | 792 |
| Paratyphoid B: | | | | | | | | | | | | | | |
| Pos. | 1 | 1 | | | | 2 | 2 | | 1 | | 2 | 2 | 11 | |
| Neg. | 39 | 31 | 43 | 30 | 57 | 66 | 103 | 102 | 89 | 95 | 65 | 47 | 767 | |
| Partial | | 1 | | | | 2 | 1 | 4 | 2 | | | 3 | 13 | |
| Unsat. | | 1 | | | | | | | | | | 2 | 3 | 794 |
| Weil-Felix: Pos. | 4 | 9 | 7 | 13 | 12 | 15 | 31 | 30 | 26 | 23 | 13 | 20 | 203 | |
| Neg. | 112 | 139 | 193 | 242 | 275 | 289 | 396 | 412 | 350 | 345 | 215 | 186 | 3,154 | |
| Partial | 2 | 3 | 1 | | 2 | 5 | 13 | 10 | 11 | 3 | 2 | 11 | 63 | |
| Unsat. | | 1 | | 4 | | | 1 | | | 1 | | | 7 | 3,427 |
| Rocky Mountain Spotted Fever | | | | | | | | | | | | | | |
| Neg. | | | | | 1 | 1 | | | | | 2 | | 4 | 4 |
| Brucella Abortus: | | | | | | | | | | | | | | |
| Pos. | 3 | 5 | 8 | 7 | 13 | 2 | 3 | 8 | 8 | 8 | 2 | 5 | 72 | |
| Neg. | 138 | 165 | 212 | 275 | 307 | 324 | 429 | 423 | 369 | 389 | 216 | 209 | 3,456 | |
| Partial | 1 | 2 | | | 7 | 4 | 6 | 3 | 1 | 6 | | 5 | 35 | |
| Unsat. | 1 | 1 | 3 | 9 | 7 | 9 | 7 | 7 | 4 | 3 | | 1 | 52 | 3,615 |

TABLE 4.—REPORT OF CENTRAL LABORATORY AT JACKSONVILLE BY MONTHS.—Continued.

| | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P. Tularense: Pos. | | 1 | 1 | 1 | | 1 | 1 | | 2 | | | 3 | 10 | |
| Neg. | 57 | 64 | 84 | 112 | 137 | 71 | 90 | 105 | 116 | 123 | 72 | 72 | 1,103 | |
| Partial | 1 | 2 | | | 2 | | 2 | | | | 1 | | 8 | |
| Unsat. | | 1 | | | | | | | 1 | | | | 2 | 1,123 |
| Cultures Blood: Typhoid: Pos. | 1 | 3 | 8 | 11 | 15 | 6 | 4 | 8 | 11 | 3 | 1 | 2 | 73 | |
| Neg. | 141 | 201 | 245 | 323 | 389 | 398 | 553 | 542 | 480 | 541 | 417 | 421 | 4,651 | |
| Papatyphoid B: Pos. | | | | | | | | | | | | 1 | 1 | |
| S. Suipestifer: Pos. | | 2 | | | 1 | | 2 | | | 1 | | | 6 | 4,731 |
| Stool & urine Typhoid: Pos. | 4 | | 16 | 33 | 15 | 14 | 16 | 7 | 17 | 16 | 7 | 1 | 146 | |
| Neg. | 99 | 67 | 151 | 195 | 206 | 278 | 277 | 201 | 160 | 199 | 96 | 81 | 2,010 | |
| Unsat. | 1 | | | 9 | 1 | 2 | 2 | 2 | | | 10 | 14 | 41 | |
| Paratyphoid B: Pos. | | | 1 | | | 2 | | | 2 | | 1 | 5 | 11 | |
| S. Suipestifer: Pos. | | 1 | | | | 1 | 2 | 2 | | | | | 6 | 2,214 |
| Stool; Dysentery Pos. | 1 | | | 2 | 6 | 9 | 7 | 3 | 4 | 3 | 2 | 2 | 39 | |
| Neg. | 2 | 3 | 3 | 8 | 8 | 2 | 3 | 2 | | | | 3 | 34 | 73 |
| Tuberculosis Microscopic: Pos. | 48 | 42 | 37 | 53 | 62 | 38 | 74 | 36 | 45 | 79 | 37 | 64 | 615 | |
| Neg. | 512 | 447 | 485 | 495 | 537 | 427 | 446 | 462 | 338 | 461 | 420 | 557 | 5,587 | |
| Unsat. | 59 | 69 | 52 | 88 | 90 | 45 | 63 | 44 | 49 | 44 | 28 | 23 | 654 | 6,856 |
| Cultures: Pos. | 2 | 4 | 4 | 4 | 4 | | 1 | 1 | | 1 | 2 | 2 | 23 | |
| Neg. | 206 | 354 | 490 | 515 | 560 | 485 | 534 | 493 | 396 | 509 | 455 | 606 | 5,603 | 5,626 |
| Animal Inoculation: | | 3 | | 5 | 10 | 8 | 2 | 3 | 6 | 7 | 2 | 6 | 52 | 52 |

TABLE 4. — REPORT OF CENTRAL LABORATORY AT JACKSONVILLE BY MONTHS. — Continued.

| | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gonorrhea Smears: | | | | | | | | | | | | | | |
| Pos. | 240 | 219 | 222 | 215 | 214 | 197 | 228 | 239 | 220 | 179 | 151 | 147 | 2,471 | |
| Neg. | 2,003 | 1,927 | 2,024 | 2,039 | 2,009 | 1,850 | 2,186 | 1,950 | 1,709 | 1,670 | 1,516 | 1,550 | 22,433 | |
| Unsat. | 38 | 32 | 18 | 18 | 28 | 24 | 27 | 33 | 25 | 44 | 11 | 10 | 308 | 25,212 |
| Cultures: Pos. | 3 | 12 | 9 | 5 | 7 | 4 | 3 | 7 | 8 | 2 | 1 | 1 | 62 | |
| Neg. | 44 | 60 | 86 | 70 | 69 | 58 | 52 | 91 | 76 | 44 | 2 | 6 | 658 | |
| Unsat. | 2 | 1 | 3 | | 9 | 5 | 1 | 1 | 1 | 4 | | | 27 | 747 |
| Ophthalmia: Pos. | | 2 | | | | | | 1 | | 2 | 2 | | 7 | |
| Neg. | 15 | 18 | 15 | 19 | 19 | 13 | 14 | 14 | 33 | 41 | 17 | 11 | 229 | |
| Unsat. | | | | 5 | 2 | | | | | | | | 7 | 243 |
| Syphilis Kahn: | | | | | | | | | | | | | | |
| Blood | | | | | | | | | | | | | | |
| Evaluation Test | | | | | | | | | | | | | | |
| Pos. | 94 | 93 | | | | | | | | | | | 187 | |
| Neg. | 89 | 78 | | | | | | | | | | | 167 | |
| Doubtful | 3 | 2 | | | | | | | | | | | 5 | |
| Unsat. | 1 | 1 | | | | | | | | | | | 2 | 361 |
| Qualitative Pos. | 4,052 | 4,931 | 4,881 | 5,014 | 4,970 | 4,400 | 4,548 | 3,834 | 3,769 | 4,407 | 3,841 | 3,589 | 52,236 | |
| Neg. | 17,856 | 17,699 | 18,883 | 18,355 | 18,264 | 17,736 | 21,007 | 18,969 | 19,604 | 21,691 | 19,011 | 18,294 | 227,369 | |
| Doubtful | 303 | 395 | 314 | 211 | 323 | 537 | 567 | 432 | 531 | 389 | 430 | 329 | 4,561 | |
| Unsat. | 1,185 | 1,292 | 1,381 | 1,523 | 1,721 | 2,182 | 1,828 | 2,136 | 2,251 | 2,403 | 1,616 | 1,290 | 20,808 | |
| Quantitative Pos. | | 12 | 9 | 4 | 5 | 1 | | | | | | 87 | 118 | 305,092 |
| Spinal Fluid: | | | | | | | | | | | | | | |
| Qualitative Pos. | 19 | 18 | 24 | 23 | 20 | 42 | 28 | 19 | 27 | 22 | 22 | 31 | 295 | |
| Neg. | 142 | 176 | 198 | 213 | 319 | 396 | 256 | 270 | 374 | 247 | 247 | 286 | 3,164 | |
| Doubtful | 2 | 1 | 1 | 1 | 1 | 396 | 256 | 270 | 374 | 287 | | | 7 | |
| Unsat. | 3 | 3 | 4 | | 1 | 1 | 4 | 4 | 3 | 1 | 1 | 2 | 27 | |
| Quantitative Pos. | | 10 | 6 | 14 | 8 | 35 | 12 | 10 | 13 | 14 | 10 | 16 | 148 | 3,641 |

TABLE 4. — REPORT OF CENTRAL LABORATORY AT JACKSONVILLE BY MONTHS. — Continued.

| | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pos. | | | | | | | | | | | | | | |
| Neg. | | | | | | | | | | | | | | |
| Syphilis Eagle: | 98 | 93 | | | | | | | | | | | 191 | |
| Evaluation Test: | 85 | 78 | | | | | | | | | | | 163 | |
| Doubtful | 3 | 2 | | | | | | | | | | | 5 | |
| Unsat. | 1 | 1 | | | | | | | | | | | 2 | 361 |
| Qualitative Pos. | 4,354 | 5,629 | 5,702 | 5,813 | 5,401 | 4,752 | 4,574 | 4,268 | 4,314 | 4,884 | 4,194 | 3,990 | 57,875 | |
| Neg. | 17,400 | 16,784 | 17,693 | 17,261 | 17,711 | 17,425 | 19,396 | 18,820 | 18,920 | 20,579 | 19,015 | 18,016 | 219,020 | |
| Doubtful | 431 | 614 | 683 | 265 | 464 | 864 | 776 | 666 | 669 | 656 | 780 | 523 | 7,391 | |
| Unsat. | 191 | 227 | 250 | 196 | 170 | 304 | 266 | 285 | 323 | 352 | 280 | 325 | 3,169 | 287,455 |
| Darkfield Pos. | 1 | 1 | | | | | | | | | | | 2 | |
| Neg. | 4 | 9 | 4 | 1 | 5 | 1 | 2 | 3 | 1 | 1 | 2 | 2 | 35 | |
| Doubtful | | | | | 1 | | | | | | | | 1 | |
| Unsat. | | | | | | | | | 1 | 1 | | | 2 | 40 |
| Rabies: | | | | | | | | | | | | | | |
| Dog: Pos. | 1 | 1 | | 4 | 6 | 6 | 2 | 2 | 2 | 9 | 6 | 6 | 45 | |
| Neg. | 12 | 8 | 7 | 7 | 18 | 12 | 14 | 11 | 9 | 5 | 11 | 8 | 122 | |
| Unsat. | | | | | | | | | | | | 1 | 1 | |
| Cat: Pos. | | | | | 1 | | | | | 1 | | | 2 | |
| Neg. | 3 | | 2 | 1 | 2 | 1 | 6 | 3 | 3 | 2 | | 2 | 25 | |
| Unsat. | | | | | | | | 1 | | | | | 1 | |
| Other Animals: | | | | | | | | | | | | | | |
| Neg. | | | | 3 | 1 | 3 | 1 | 3 | | 2 | 1 | | 14 | 210 |
| Leprosy: Neg. | 1 | | | | | | | | 4 | | | | 5 | 5 |
| Hemoglobin: | | 18 | 20 | 17 | 31 | 68 | 55 | 78 | 49 | 67 | 72 | 73 | 548 | 548 |
| Protein—Spinal Fluid | 3 | 36 | 79 | 152 | 218 | 339 | 166 | 152 | 273 | 196 | 172 | 232 | 2,018 | 2,018 |
| Miscellaneous: | 39 | 45 | 50 | 27 | 31 | 14 | 42 | 47 | 32 | 31 | 18 | 41 | 417 | 417 |
| Water: | | | | | | | | | | | | | | |
| Bacteriological | 1,558 | 1,707 | 1,435 | 1,606 | 2,016 | 1,845 | 1,815 | 1,665 | 1,597 | 1,590 | 1,352 | 1,528 | 19,714 | 19,714 |
| Chemical | 308 | 300 | 104 | 258 | 328 | 186 | 183 | 104 | 93 | 225 | 39 | 96 | 2,224 | 2,224 |
| Milk: | 276 | 294 | 337 | 324 | 302 | 276 | 316 | 272 | 422 | 262 | 268 | 196 | 3,545 | 3,545 |
| Ice Cream: | | | 9 | | | | | | | | | | 9 | 9 |
| Total: | 58,721 | 60,648 | 62,733 | 64,574 | 63,758 | 62,471 | 68,247 | 64,799 | 64,255 | 71,354 | 63,876 | 61,726 | 767,162 | 767,162 |

TABLE 5.—SUMMARY REPORT OF MIAMI LABORATORY FOR YEAR 1941.

| | Positive | Negative | Doubtful | Unsat. | TOTAL | Grand Total |
|---|---|---|---|---|---|---|
| Venereal Diseases: | | | | | | |
| Gonorrhea— | | | | | | |
| Smears | 517 | 4,752 | ........ | 21 | 5,290 | |
| Cultures | 1 | 48 | ........ | 2 | 51 | |
| Ophthalmia | 4 | 18 | ........ | ........ | 22 | 5,363 |
| Syphilis— | | | | | | |
| Kahn: | | | | | | |
| Blood— | | | | | | |
| Qualitative | 12,805 | 71,891 | 1,879 | 2,765 | 89,340 | |
| Quantitative | 217 | 34 | ........ | ........ | 251 | |
| Spinal fluid— | | | | | | |
| Qualitative | 44 | 278 | 2 | 6 | 330 | 89,921 |
| Eagle | | | | | | |
| Blood-Qualitative | 10,068 | 60,300 | 2,490 | 480 | 73,338 | 73,338 |
| Darkfield | 16 | 30 | ........ | 2 | 48 | 48 |
| Rabies: | | | | | | |
| Dogs | ........ | 7 | ........ | 1 | 8 | |
| Cats | ........ | 2 | ........ | ........ | 2 | 10 |
| Miscellaneous: | | | | | | |
| Smears | 13 | 969 | ........ | 1 | 983 | 983 |

PHOTOELECTRIC COLORIMETRIC DETERMINATIONS:

| | | |
|---|---|---|
| Hemoglobin | ........ | |
| Protein cerebrospinal fluid | 57 | 57 |

| | No. Samples Examined | Total Number Tests Made | |
|---|---|---|---|
| WATER | | | |
| Bacteriological | 3,138 | 6,417 | 6,417 |
| MILK PRODUCTS: | | | |
| Milk | 2,654 | 4,084 | |
| Cream | 1,260 | 1,702 | |
| Ice cream | 469 | 500 | |
| Chocolate milk | 629 | 840 | |
| Miscellaneous | ........ | 520 | 7,646 |
| TOTAL | ........ | ........ | 197,148 |

TABLE 5.—SUMMARY REPORT OF MIAMI LABORATORY FOR YEAR 1941. — Continued.

| | Positive | Negative | Doubtful | Unsat. | TOTAL | Grand Total |
|---|---|---|---|---|---|---|
| Intestinal Parasites: | | | | | | |
| Total No. Specimens Exam. | ........ | ........ | ........ | ........ | ........ | 4,985 |
| Helminths ova-Specs. Examined | ........ | ........ | ........ | ........ | 4,197 | |
| Hookworm | 605 | 3,259 | ........ | 64 | ........ | |
| Ascaris | 64 | ........ | ........ | ........ | ........ | |
| Oxyuris | 97 | ........ | ........ | ........ | ........ | |
| Tapeworm | 16 | ........ | ........ | ........ | ........ | |
| Trichiuris | 60 | ........ | ........ | ........ | ........ | |
| Others | 32 | ........ | ........ | ........ | ........ | |
| Protozoan cysts-Specs. Exam. | ........ | ........ | ........ | ........ | 788 | |
| Endamoeba coli | 398 | ........ | ........ | ........ | ........ | |
| E. histolytica | 7 | ........ | ........ | ........ | ........ | |
| Endolimax nana | 16 | ........ | ........ | ........ | ........ | |
| Chilomastix mesnili | 321 | ........ | ........ | ........ | ........ | |
| Giardia lamblia | 36 | ........ | ........ | ........ | ........ | |
| Others | 10 | ........ | ........ | ........ | ........ | |
| Throat Specimens: | | | | | | |
| Diphtheria | | | | | | |
| Cultures | 13 | 2,976 | ........ | 19 | 3,008 | |
| Vincent's angina | 121 | 421 | ........ | 3 | 545 | |
| Streptococcus | 13 | 62 | ........ | ........ | 75 | 3,628 |
| Malaria: | | | | | | |
| Tertian | 2 | 386 | ........ | 5 | 393 | |
| Estivo-autumnal | 1 | ........ | ........ | ........ | 1 | |
| Untyped | ........ | ........ | ........ | ........ | ........ | 394 |
| Agglutination Tests: | | | | | | |
| Typhoid | 150 | 512 | ........ | 36 | 698 | |
| Para A | 16 | 374 | ........ | 2 | 392 | |
| Para B | 28 | 362 | ........ | 2 | 392 | |
| Brucella abortus | 33 | 625 | ........ | 2 | 660 | |
| Weil-Felix | 36 | 342 | ........ | 1 | 379 | |
| Tularense | 17 | 238 | ........ | 1 | 256 | 2,777 |
| Cultures: | | | | | | |
| Blood— | | | | | | |
| Typhoid | ........ | 5 | ........ | ........ | 5 | |
| Other organisms | ........ | 1 | ........ | ........ | 1 | |
| Stool and Urine— | | | | | | |
| Typhoid | 13 | 447 | ........ | 6 | 466 | |
| Stool— | | | | | | |
| Bacillary Dysentery | ........ | 19 | ........ | ........ | 19 | 491 |
| Tuberculosis: | | | | | | |
| Microscopic | | | | | | |
| Acid-fast stain | 133 | 936 | ........ | 21 | 1,090 | 1,090 |

TABLE 6. — REPORT OF MIAMI LABORATORY BY MONTHS FOR YEAR 1941.

| | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Intestinal Parasites | | | | | | | | | | | | | | |
| Hookworm: Pos. | 95 | 65 | 88 | 57 | 56 | 22 | 48 | 34 | 21 | 64 | 19 | 36 | 605 | |
| Neg. | 382 | 226 | 320 | 363 | 280 | 311 | 210 | 291 | 241 | 234 | 194 | 207 | 3,259 | |
| Unsat. | 13 | 7 | 11 | 7 | 2 | 6 | 1 | 9 | 1 | 6 | | 1 | 64 | |
| Ascaris | 5 | 3 | 7 | 10 | 9 | 14 | 4 | 2 | 7 | 2 | 1 | | 64 | |
| Oxyuris | 20 | 8 | 19 | 9 | 11 | 3 | 5 | 7 | 3 | 2 | 5 | 5 | 97 | |
| Tapeworm | 1 | 2 | | 4 | 1 | | 1 | 2 | 1 | 1 | | 3 | 16 | |
| Trichiuris | 9 | 4 | 4 | 5 | 10 | 6 | 8 | 4 | 1 | 4 | 2 | 3 | 60 | |
| Others | | 4 | 4 | 5 | 1 | 3 | 12 | 3 | | | | | 32 | 4,197 |
| Protozoan Cysts: | | | | | | | | | | | | | | |
| Endamoeba Coli | 75 | 32 | 53 | 57 | 36 | 14 | 24 | 22 | 11 | 35 | 18 | 21 | 398 | |
| E. Histolytica | 3 | | | | | | | | | 3 | | 1 | 7 | |
| Endolimax Nana | | | | | | | | | | 8 | 5 | 3 | 16 | |
| Chilomastix Mesnili | 46 | 31 | 29 | 32 | 31 | 15 | 22 | 34 | 32 | 29 | 12 | 8 | 321 | |
| Giardia Lamblia | | | | | | | 3 | 5 | 4 | 12 | 5 | 7 | 36 | |
| Others | | 1 | | | | | | | | | 4 | 5 | 10 | 788 |
| Throat Specimens | | | | | | | | | | | | | | |
| Diphtheria: Pos. | 8 | 1 | | | | 1 | 1 | | 1 | 1 | | | 13 | |
| Neg. | 627 | 872 | 367 | 182 | 178 | 88 | 100 | 112 | 135 | 109 | 92 | 114 | 2,976 | |
| Unsat. | | 3 | 1 | 5 | 5 | 3 | | | | 1 | 1 | | 19 | 3,008 |
| Vinvent's Angina: | | | | | | | | | | | | | | |
| Pos. | 9 | 15 | 15 | 6 | 7 | 6 | 5 | 4 | 9 | 13 | 16 | 16 | 121 | |
| Neg. | 50 | 54 | 58 | 28 | 29 | 22 | 17 | 21 | 33 | 54 | 30 | 25 | 421 | |
| Unsat. | 1 | | | | | | | 1 | | | | 1 | 3 | 545 |
| Streptococcus: Pos. | 2 | 2 | 1 | | | | | | 1 | 1 | 4 | 2 | 13 | |
| Neg. | 10 | 6 | 11 | 9 | 2 | 5 | 1 | 1 | 4 | 3 | 3 | 7 | 62 | 75 |
| Malaria: Pos. | | | 1 | | | | 1 | | | 1 | | | 3 | |
| Neg. | 22 | 19 | 24 | 41 | 36 | 42 | 39 | 37 | 42 | 28 | 32 | 24 | 386 | |
| Unsat. | | | | | | | 2 | | 2 | | | 1 | 5 | 394 |
| Agglutination Tests | | | | | | | | | | | | | | |
| Typhoid: Pos. | 16 | 27 | 37 | 31 | 17 | 8 | 3 | 4 | 7 | | | | 150 | |
| Neg. | 23 | 5 | 8 | 45 | 56 | 63 | 40 | 46 | 57 | 65 | 59 | 45 | 512 | |
| Unsat. | 5 | 4 | 9 | 2 | 1 | 2 | 2 | | 5 | 2 | 3 | 1 | 36 | 698 |

TABLE 6. — REPORT OF MIAMI LABORATORY BY MONTHS FOR YEAR 1941. — Continued

| | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Paratyphoid A: | | | | | | | | | | | | | | |
| Pos. | | | 4 | 1 | 1 | 3 | | 4 | 1 | | 1 | 1 | 16 | |
| Neg. | 18 | 16 | 25 | 37 | 39 | 34 | 35 | 38 | 29 | 45 | 24 | 34 | 374 | |
| Unsat. | | | | | | | | | 1 | 1 | | | 2 | 392 |
| Paratyphoid B: | | | | | | | | | | | | | | |
| Pos. | | 2 | 5 | 7 | 2 | 2 | 1 | 5 | 1 | | 1 | 2 | 28 | |
| Neg. | 18 | 14 | 24 | 31 | 38 | 35 | 34 | 37 | 29 | 45 | 24 | 33 | 362 | |
| Unsat. | | | | | | | | | 1 | 1 | | | 2 | 392 |
| Weil-Felix: Pos. | 3 | 2 | 8 | 4 | 1 | 6 | 4 | 5 | | 1 | 2 | | 36 | |
| Neg. | 13 | 16 | 20 | 23 | 37 | 37 | 31 | 29 | 29 | 40 | 30 | 37 | 342 | |
| Unsat. | | | | | | | | | | 1 | | | 1 | 379 |
| Brucella Abortus | | | | | | | | | | | | | | |
| Pos. | 3 | 5 | 2 | 5 | 3 | 1 | 5 | 4 | 3 | 1 | 1 | | 33 | |
| Neg. | 34 | 37 | 49 | 58 | 63 | 58 | 58 | 46 | 48 | 75 | 53 | 46 | 625 | |
| Unsat. | | | | | | | | | 1 | 1 | | | 2 | 660 |
| P. Tularense: Pos. | | 2 | 2 | 3 | 1 | 2 | | 2 | 3 | 1 | 1 | | 17 | |
| Neg. | 7 | 9 | 17 | 15 | 29 | 29 | 27 | 23 | 8 | 30 | 18 | 26 | 238 | |
| Unsat. | | | | | | | | | | 1 | | | 1 | 256 |
| Cultures Blood: | | | | | | | | | | | | | | |
| Typhoid: Neg. | 1 | | | | | 2 | | | 1 | | 1 | | 5 | |
| Other Organisms: | | | | | | | | | | | | | | |
| Neg. | | | | | | | | | | 1 | | | 1 | 6 |
| Stool and Urine: | | | | | | | | | | | | | | |
| Typhoid: Pos. | 3 | | | 3 | 3 | 2 | | | | 1 | 1 | | 13 | |
| Neg. | 67 | 64 | 61 | 19 | 30 | 23 | 34 | 28 | 29 | 32 | 26 | 34 | 447 | |
| Unsat. | | 1 | 2 | | | 1 | | | | | 1 | 1 | 6 | 466 |
| Dysentery: | | | | | | | | | | | | | | |
| Neg. | | | | | | | | 1 | 3 | 8 | 2 | 5 | 19 | 19 |
| Tuberculosis: Pos. | 9 | 16 | 8 | 6 | 18 | 11 | 16 | 11 | 9 | 10 | 10 | 9 | 133 | |
| Neg. | 70 | 92 | 92 | 82 | 83 | 78 | 79 | 37 | 50 | 92 | 106 | 75 | 936 | |
| Unsat. | 2 | 4 | | | 4 | 2 | 1 | | | 5 | 2 | 1 | 21 | 1,090 |
| Gonorrhea | | | | | | | | | | | | | | |
| Smears: Pos. | 63 | 42 | 61 | 34 | 36 | 32 | 43 | 37 | 36 | 37 | 54 | 42 | 517 | |
| Neg. | 508 | 402 | 519 | 380 | 361 | 356 | 364 | 377 | 332 | 400 | 387 | 366 | 4,752 | |
| Unsat. | 5 | 1 | | | 1 | 2 | 2 | 1 | 2 | 2 | | 5 | 21 | 5,290 |

TABLE 6.—REPORT OF MIAMI LABORATORY BY MONTHS FOR YEAR 1941.—Continued

| | | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cultures: | Pos. | | | 1 | | | | | | | | | | 1 | |
| | Neg. | | | | | | | | 5 | 4 | 31 | 4 | 4 | 48 | |
| | Unsat. | | 1 | | | | | | | | 1 | | | 2 | 51 |
| Ophthalmia: | Pos. | | 1 | | | | 2 | 1 | | | | | | 4 | |
| | Neg. | 4 | 3 | 1 | 1 | 1 | | | 1 | 2 | 5 | | | 18 | 22 |
| Syphilis: Kahn - Blood | | | | | | | | | | | | | | | |
| Qualitative | Pos. | 1,352 | 1,028 | 1,125 | 1,046 | 1,011 | 892 | 886 | 913 | 904 | 1,296 | 1,129 | 1,223 | 12,805 | |
| | Neg. | 9,379 | 5,382 | 5,099 | 4,573 | 4,460 | 4,405 | 5,683 | 5,276 | 5,516 | 6,831 | 6,505 | 8,782 | 71,891 | |
| | Doubtful | 148 | 131 | 171 | 154 | 122 | 131 | 124 | 124 | 134 | 222 | 203 | 215 | 1,879 | |
| | Unsat. | 333 | 233 | 255 | 250 | 143 | 214 | 226 | 147 | 193 | 222 | 264 | 285 | 2,765 | 89,340 |
| Quantitative | | | | | | | | | | | | | | | |
| | Pos. | | 1 | 26 | 19 | 21 | 24 | 13 | 24 | 10 | 26 | 28 | 25 | 217 | |
| | Neg. | | | | | | 6 | 6 | 8 | 14 | | | | 34 | 251 |
| Spinal fluid: | Pos. | 7 | 4 | 2 | 3 | 5 | 3 | 1 | 1 | | 4 | 10 | 4 | 44 | |
| | Neg. | 31 | 16 | 26 | 14 | 16 | 27 | 23 | 16 | 19 | 23 | 44 | 23 | 278 | |
| | Doubtful | | 1 | 1 | | | | | | | | | | 2 | |
| | Unsat. | 1 | | 1 | | 1 | | | 2 | | | 1 | | 6 | 330 |
| Eagle: Blood - | Pos. | 1,150 | 912 | 1,002 | 1,011 | 801 | 733 | 582 | 176 | 651 | 978 | 1,014 | 1,058 | 10,068 | |
| | Neg. | 8,537 | 4,830 | 4,420 | 4,078 | 4,267 | 4,118 | 4,408 | 1,085 | 5,089 | 5,871 | 5,864 | 7,733 | 60,300 | |
| | Doubtful | 173 | 81 | 162 | 193 | 120 | 154 | 129 | 37 | 209 | 420 | 333 | 479 | 2,490 | |
| | Unsat. | 102 | 81 | 55 | 47 | 9 | 14 | 23 | 11 | 29 | 48 | 61 | | 480 | 73,338 |
| Darkfield: | Pos. | | 2 | 1 | 2 | | | | 2 | 2 | 1 | 5 | 1 | 16 | |
| | Neg. | 6 | 8 | 2 | | 1 | 2 | 2 | 2 | 1 | 2 | 1 | 3 | 30 | |
| | Unsat. | | | 1 | 1 | | | | | | | | | 2 | |
| Rabies | | | | | | | | | | | | | | | |
| Dog: | Neg. | 1 | 1 | | | 1 | 1 | 3 | | | | | | 7 | |
| | Unsat. | | | | | | | | | | 1 | | | 1 | |
| Cat: | Neg. | | | | | | | | 1 | | 1 | | | 2 | 10 |
| Protein: Spinal Fluid | | | | | | | | | | | 16 | 41 | | 57 | 57 |
| Miscellaneous | | 12 | 1 | | 3 | | 48 | 6 | 4 | 5 | 80 | 429 | 915 | 1,503 | 1,503 |
| Water: | | | | | | | | | | | | | | | |
| Bacteriological | | 597 | 453 | 774 | 519 | 476 | 564 | 531 | 513 | 440 | 490 | 539 | 521 | 6,417 | 6,417 |
| Milk: | | 496 | 438 | 379 | 548 | 469 | 471 | 372 | 530 | 663 | 713 | 722 | 825 | 6,626 | 6,626 |
| Ice Cream: | | 36 | 45 | 52 | 49 | 37 | 48 | 46 | 37 | 34 | 46 | 35 | 35 | 500 | 500 |
| Total: | | 24,611 | 15,769 | 15,522 | 14,117 | 13,479 | 13,207 | 14,348 | 10,239 | 15,153 | 18,837 | 18,482 | 23,384 | 197,148 | 197,148 |

TABLE 7.—SUMMARY REPORT OF TAMPA LABORATORY, 1941.

| | Positive | Negative | Doubtful | Unsat. | TOTAL | Grand Total |
|---|---|---|---|---|---|---|
| Intestinal Parasites: | | | | | | |
| Total No. Specimens Examined | | | | | | 19,100 |
| Helminths ova— | | | | | | |
| Specs. Exam. | | | | | 19,100 | |
| Hookworm | 5,161 | 13,506 | | 18 | | |
| Ascaris | 240 | | | | | |
| Oxyuris | 81 | | | | | |
| Tapeworm | 22 | | | | | |
| Trichiuris | 72 | | | | | |
| Throat Specimens: | | | | | | |
| Diphtheria— | | | | | | |
| Cultures | 147 | 3,488 | | 8 | 3,643 | |
| Vincent's angina | 578 | 1,970 | | 12 | 2,560 | |
| Streptococcus | 257 | 243 | | | 500 | 6,703 |
| Malaria: | | | | | | |
| Tertian | 11 | 1,795 | | 9 | 1,815 | |
| Estivo-autumnal | 4 | | | | 4 | |
| Untyped | 5 | | | | 5 | 1,824 |
| Agglutination Tests: | | | | | | |
| Typhoid | 86 | 2,890 | 165 | 32 | 3,173 | |
| Para A | 10 | 781 | | | 791 | |
| Para B | 23 | 768 | | | 791 | |
| Brucella abortus | 15 | 790 | | | 805 | |
| Weil-Felix | 45 | 744 | 15 | | 804 | |
| Tularense | 5 | 147 | | | 152 | 6,516 |
| Cultures: | | | | | | |
| Blood— | | | | | | |
| Typhoid | 5 | 798 | | | 803 | |
| Stool and Urine | | | | | | |
| Para B | 1 | | | | 1 | |
| Typhoid | 5 | 60 | | | 65 | |
| Stool— | | | | | | |
| Bacillary Dysentery | | 2 | | | 2 | 871 |
| Tuberculosis: | | | | | | |
| Microscopic— | | | | | | |
| Acid-fast stain | 581 | 2,394 | | 37 | 3,012 | 3,012 |

TABLE 7. — SUMMARY REPORT OF TAMPA LABORATORY, 1941. — Continued.

| | Positive | Negative | Doubtful | Unsat. | TOTAL | Grand Total |
|---|---|---|---|---|---|---|
| Venereal Diseases | | | | | | |
| Gonorrhea— | | | | | | |
| Smears | 923 | 5,466 | .......... | 73 | 6,462 | |
| Cultures | .......... | 18 | .......... | .......... | 18 | |
| Ophthalmia | 3 | 258 | .......... | 10 | 271 | 6,751 |
| Syphilis— | | | | | | |
| Kahn— | | | | | | |
| Blood— | | | | | | |
| Qualitative | 9,189 | 61,612 | 1,601 | 2,563 | 74,965 | |
| Quantitative | 426 | .......... | .......... | .......... | 426 | |
| Spinal fluid— | | | | | | |
| Qualitative | 19 | 126 | .......... | 2 | 147 | |
| Quantitative | 11 | .......... | .......... | .......... | 11 | |
| Eagle— | | | | | | |
| Blood-Qualitative | 9,827 | 58,330 | 1,529 | 3,317 | 73,003 | |
| Darkfield | 68 | 252 | .......... | 21 | 341 | 148,893 |
| Rabies: | | | | | | |
| Dogs | 1 | 22 | .......... | 2 | 25 | |
| Cats | .......... | 11 | .......... | .......... | 11 | |
| Other animals | .......... | 2 | .......... | .......... | 2 | 38 |
| Miscellaneous: | | | | | | |
| Cell counts | .......... | .......... | .......... | .......... | 127 | |
| Smears | 5 | 19 | .......... | .......... | 24 | |
| Cultures | .......... | 24 | .......... | 2 | 26 | |
| Urine Analysis | .......... | .......... | .......... | .......... | 44 | 221 |

PHOTOELECTRIC COLORIMETRIC DETERMINATIONS:

| | | |
|---|---|---|
| Hemoglobin | 338 | |
| Protein cerebrospinal fluid | 121 | 459 |

| | No. Samples Examined | Total Number Tests Made | |
|---|---|---|---|
| WATER: | | | |
| Bacteriological | 919 | 1,870 | 1,870 |
| MILK PRODUCTS: | | | |
| Milk | 78 | 228 | 228 |
| TOTAL | | | 196,486 |

TABLE 8. — REPORT OF TAMPA LABORATORY BY MONTHS FOR YEAR 1941.

| | | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Intestinal Parasites | | | | | | | | | | | | | | | |
| Hookworm: | Pos. | 276 | 396 | 385 | 385 | 337 | 475 | 1,293 | 180 | 159 | 447 | 404 | 424 | 5,161 | |
| | Neg. | 916 | 1,452 | 1,237 | 1,112 | 951 | 1,141 | 1,868 | 669 | 562 | 1,150 | 1,128 | 1,320 | 13,506 | |
| | Unsat. | | | 1 | | 1 | 2 | | | | 1 | 4 | 9 | 18 | |
| Ascaris | | 21 | 14 | 29 | 14 | 21 | 25 | 31 | 13 | 4 | 35 | 17 | 16 | 240 | |
| Oxyuris | | 4 | 9 | 3 | 7 | 4 | 5 | 10 | 2 | | 13 | 14 | 10 | 81 | |
| Tapeworm | | 4 | 1 | 8 | 3 | 2 | 1 | 1 | | | 1 | 1 | | 22 | |
| Trichiuris | | 4 | 4 | 1 | 10 | 5 | 4 | 17 | 2 | 1 | 11 | 6 | 7 | 72 | 19,100 |
| Throat Specimens | | | | | | | | | | | | | | | |
| Diphtheria: | Pos. | 31 | 12 | 2 | 2 | 5 | 9 | 6 | 4 | 9 | 16 | 30 | 21 | 147 | |
| | Neg. | 216 | 290 | 318 | 328 | 304 | 187 | 177 | 231 | 201 | 396 | 424 | 416 | 3,488 | |
| | Unsat. | 2 | 1 | 1 | | | | 1 | | 1 | | 1 | 1 | 8 | 3,643 |
| Vincent's Angina | | | | | | | | | | | | | | | |
| | Pos. | 57 | 50 | 68 | 52 | 45 | 40 | 56 | 25 | 31 | 36 | 66 | 52 | 578 | |
| | Neg. | 114 | 120 | 204 | 224 | 190 | 127 | 138 | 124 | 142 | 206 | 181 | 200 | 1,970 | |
| | Unsat. | | | 1 | | | | 1 | | 1 | 6 | 2 | 1 | 12 | 2,560 |
| Streptococcus | | | | | | | | | | | | | | | |
| | Pos. | 10 | 22 | 42 | 34 | 53 | 19 | 16 | 16 | 4 | 7 | 4 | 30 | 257 | |
| | Neg. | 6 | 10 | 29 | 26 | 27 | 11 | 60 | 31 | 10 | 17 | 12 | 4 | 243 | 500 |
| Malaria: | Pos. | 1 | 2 | 2 | 2 | 1 | 1 | 2 | 2 | 2 | | 4 | 1 | 20 | |
| | Neg. | 84 | 83 | 111 | 133 | 161 | 166 | 216 | 257 | 190 | 192 | 95 | 107 | 1,795 | |
| | Unsat. | | | | 3 | | | 2 | | 2 | | | 2 | 9 | 1,824 |
| Agglutination Tests | | | | | | | | | | | | | | | |
| Typhoid: | Pos. | 4 | 3 | 8 | 3 | 3 | 2 | 22 | 3 | 11 | 3 | 6 | 18 | 86 | |
| | Neg. | 111 | 130 | 185 | 227 | 299 | 297 | 341 | 336 | 295 | 329 | 175 | 165 | 2,890 | |
| | Partial | 1 | 2 | 5 | 5 | 4 | 1 | 15 | 36 | 33 | 17 | 22 | 24 | 165 | |
| | Unsat. | | 1 | 2 | | | 6 | 4 | 4 | 7 | 2 | 1 | 5 | 32 | 3,173 |
| Paratyphoid A: | | | | | | | | | | | | | | | |
| | Pos. | | | 1 | 1 | | | 2 | | 1 | | 1 | 4 | 10 | |
| | Neg. | 21 | 30 | 47 | 54 | 74 | 67 | 90 | 107 | 91 | 91 | 57 | 52 | 781 | 791 |
| Paratyphoid B: | | | | | | | | | | | | | | | |
| | Pos. | | | 5 | 1 | 2 | 1 | 5 | 4 | | | 4 | 1 | 23 | |
| | Neg. | 21 | 30 | 42 | 54 | 71 | 68 | 87 | 103 | 92 | 91 | 54 | 55 | 768 | 791 |

TABLE 8. — REPORT OF TAMPA LABORATORY BY MONTHS FOR YEAR 1941. — Continued

| | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Weil Felix: Pos. | 1 | | 2 | 1 | 3 | 7 | 7 | 7 | 5 | 6 | 2 | 4 | 45 | |
| Neg. | 21 | 29 | 46 | 54 | 74 | 63 | 77 | 99 | 87 | 86 | 56 | 52 | 744 | |
| Partial | | 1 | 1 | 1 | | 2 | 8 | 2 | | | | | 15 | 804 |
| Brucella Abortus: | | | | | | | | | | | | | | |
| Pos. | 1 | | 1 | | 2 | 1 | 1 | 1 | | | 4 | 4 | 15 | |
| Neg. | 21 | 32 | 48 | 56 | 74 | 72 | 92 | 106 | 92 | 91 | 54 | 52 | 790 | 805 |
| P. Tularense: Pos. | | | 2 | 1 | 1 | | | | | | | 1 | 5 | |
| Neg. | 2 | 4 | 8 | 9 | 12 | 13 | 17 | 29 | | 17 | 14 | 22 | 147 | 152 |
| Cultures: Blood | | | | | | | | | | | | | | |
| Typhoid: Pos. | 1 | 1 | | | 2 | | | | | | | 1 | 5 | |
| Neg. | 4 | 52 | 47 | 51 | 68 | 69 | 102 | 98 | 100 | 96 | 53 | 58 | 798 | 803 |
| Stool & Urine | | | | | | | | | | | | | | |
| Typhoid: Pos. | | 1 | 1 | | 2 | | 1 | | | | | | 5 | |
| Neg. | | 5 | 8 | 7 | 1 | 13 | 4 | 1 | 10 | 5 | 5 | 1 | 60 | |
| Paratyphoid B: | | | | | | | | | | | | | | |
| Pos. | | | | | | | 1 | | | | | | 1 | 66 |
| Dysentery: Neg. | | | | | | | | | | 1 | 1 | | 2 | 2 |
| Tuberculosis: Pos. | 56 | 46 | 54 | 36 | 50 | 47 | 39 | 45 | 43 | 66 | 61 | 38 | 581 | |
| Neg. | 217 | 185 | 249 | 277 | 250 | 196 | 183 | 180 | 189 | 174 | 147 | 147 | 2,394 | |
| Unsat. | 9 | 13 | 2 | 4 | | | 1 | 1 | 1 | 3 | | 3 | 37 | 3,012 |
| Gonorrhea | | | | | | | | | | | | | | |
| Smears: Pos. | 70 | 71 | 85 | 74 | 78 | 84 | 90 | 58 | 61 | 91 | 78 | 83 | 923 | |
| Neg. | 424 | 389 | 437 | 443 | 481 | 431 | 510 | 523 | 621 | 535 | 344 | 328 | 5,466 | |
| Unsat. | 5 | 4 | 3 | 5 | 1 | 3 | 2 | 3 | 5 | 21 | 13 | 8 | 73 | 6,462 |
| Cultures: Neg. | | | | | | | 8 | 6 | | 1 | 3 | | 18 | 18 |
| Ophthalmia: Pos. | | | | 2 | | | | | | 1 | | | 3 | |
| Neg. | 9 | 13 | 14 | 39 | 36 | 12 | 30 | 12 | 27 | 6 | 18 | 42 | 258 | |
| Unsat. | | | | 1 | 2 | 1 | | | | 2 | 2 | 2 | 10 | 271 |
| Syphilis: Kahn-Blood | | | | | | | | | | | | | | |
| Qualitative: Pos. | 728 | 838 | 817 | 672 | 813 | 682 | 765 | 786 | 793 | 966 | 662 | 667 | 9,189 | |
| Neg. | 5,554 | 5,146 | 4,655 | 4,093 | 4,353 | 3,962 | 5,278 | 4,296 | 5,652 | 5,746 | 5,971 | 6,906 | 61,612 | |
| Doubtful | 65 | 113 | 118 | 68 | 128 | 136 | 253 | 149 | 191 | 129 | 131 | 120 | 1,601 | |
| Unsat. | 203 | 259 | 186 | 131 | 187 | 258 | 289 | 278 | 247 | 184 | 177 | 164 | 2,563 | 74,965 |
| Quantitative | 19 | 31 | 26 | 13 | 14 | 8 | 48 | 49 | 43 | 72 | 61 | 42 | 426 | 426 |

TABLE 8. — REPORT OF TAMPA LABORATORY BY MONTHS FOR YEAR 1941. — Continued

| | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spinal Fluid | | | | | | | | | | | | | | |
| Qualitative: Pos. | | 2 | 1 | 8 | 3 | 1 | | 1 | | 1 | 1 | 1 | 19 | |
| Neg. | | 16 | 18 | 5 | 14 | 12 | 11 | 10 | 7 | 16 | 10 | 7 | 126 | |
| Unsat. | | | | | | | 1 | | | 1 | | | 2 | |
| Quantitative: | | | | | | | | | | | | | | |
| Pos. | | 1 | 1 | 4 | 3 | 1 | | 1 | | | | | 11 | 158 |
| Eagle | | | | | | | | | | | | | | |
| Blood: Pos. | 826 | 840 | 830 | 704 | 899 | 712 | 846 | 844 | 829 | 973 | 773 | 751 | 9,827 | |
| Neg. | 5,169 | 4,824 | 4,401 | 3,906 | 4,087 | 3,815 | 5,153 | 4,029 | 5,366 | 5,474 | 5,512 | 6,594 | 58,330 | |
| Doubtful | 92 | 136 | 116 | 88 | 134 | 141 | 196 | 138 | 141 | 104 | 78 | 165 | 1,529 | |
| Unsat. | 246 | 321 | 266 | 149 | 186 | 133 | 169 | 253 | 374 | 397 | 517 | 306 | 3,317 | 73,003 |
| Darkfield: Pos. | 6 | | 2 | 3 | 6 | 9 | 6 | 6 | 7 | 8 | 11 | 9 | 68 | |
| Neg. | 17 | 9 | 3 | 2 | 9 | 6 | 14 | 15 | 42 | 41 | 51 | 43 | 252 | |
| Unsat. | 1 | | 1 | | | | 2 | 2 | 4 | 1 | 5 | 5 | 21 | 341 |
| Rabies | | | | | | | | | | | | | | |
| Dog: Pos. | | 1 | | | | | | | | | | | 1 | |
| Neg. | | 2 | | | 2 | | 2 | 3 | 1 | 5 | 5 | 2 | 22 | |
| Unsat. | | | | | | | | | 1 | 1 | | | 2 | |
| Cat: Neg. | 1 | | | | | 5 | | 2 | 1 | | 1 | 1 | 11 | |
| Other Animals: | | | | | | | | | | | | | | |
| Neg. | | | | | | 1 | | | | 1 | | | 2 | 38 |
| Leprosy: Pos. | | | | | | | | | | | 1 | 2 | 3 | |
| Neg. | | | | | | | | | | | | 1 | 1 | 4 |
| Hemoglobin | 7 | 16 | 23 | 20 | 33 | 36 | 41 | 30 | 30 | 41 | 33 | 28 | 338 | 338 |
| Protein Spinal Fluid | 30 | 13 | 16 | 8 | 9 | 7 | 4 | 4 | 3 | 14 | 8 | 5 | 121 | 121 |
| Miscellaneous | 56 | 24 | 60 | 10 | 14 | 11 | 14 | 8 | 4 | 10 | 2 | 4 | 217 | 217 |
| Water | 123 | 117 | 93 | 92 | 89 | 179 | 388 | 256 | 159 | 186 | 86 | 104 | 1,870 | 1,870 |
| Milk | 6 | | 36 | 18 | 37 | 24 | 33 | 12 | 25 | 19 | 12 | 6 | 228 | 228 |
| Total: | 15,894 | 16,217 | 15,414 | 13,735 | 14,715 | 13,803 | 19,147 | 14,492 | 17,010 | 18,659 | 17,676 | 19,724 | 196,486 | 196,486 |

TABLE 9.—SUMMARY REPORT OF PENSACOLA LABORATORY FOR 1941.

| | Positive | Negative | Doubtful | Unsat. | TOTAL | Grand Total |
|---|---|---|---|---|---|---|
| Intestinal Parasites: | | | | | | |
| Total No. Specimens Examined | ... | ... | ... | ... | ... | 5,664 |
| Helminths ova— | | | | | | |
| Specs. Exam. | ... | ... | ... | ... | 5,664 | |
| Hookworm | 1,133 | 4,409 | ... | 47 | ... | |
| Ascaris | 37 | ... | ... | ... | ... | |
| Oxyuris | 25 | ... | ... | ... | ... | |
| Tapeworm | 9 | ... | ... | ... | ... | |
| Trichiuris | 4 | ... | ... | ... | ... | |
| Throat Specimens: | | | | | | |
| Diphtheria— | | | | | | |
| Cultures | 26 | 394 | ... | 16 | 436 | |
| Vincent's angina | 57 | 139 | ... | ... | 196 | |
| Streptococcus | 65 | ... | ... | ... | 65 | 697 |
| Malaria: | | | | | | |
| Tertian | 28 | 929 | ... | 3 | 960 | |
| Estivo-autumnal | 2 | ... | ... | ... | 2 | |
| Untyped | 2 | ... | ... | ... | 2 | 964 |
| Agglutination Tests: | | | | | | |
| Typhoid, | | | | | | |
| "H" Agglutinins | 23 | 519 | 18 | 2 | 562 | |
| "O" Agglutinins | 2 | 202 | 4 | ... | 208 | |
| Para A | 8 | 166 | 4 | ... | 178 | |
| Para B | 20 | 144 | 14 | ... | 178 | |
| Brucella abortus | 2 | 172 | 2 | ... | 176 | |
| Weil-Felix | 23 | 236 | 1 | ... | 260 | |
| Tularense | ... | 66 | 1 | ... | 67 | 1,629 |
| Cultures: | | | | | | |
| Blood— | | | | | | |
| Typhoid | ... | 5 | ... | ... | 5 | |
| Stool and Urine | | | | | | |
| Typhoid | 1 | 27 | ... | ... | 28 | |
| Stool— | | | | | | |
| Bacillary Dysentery | 1 | 3 | ... | ... | 4 | 37 |
| Tuberculosis: | | | | | | |
| Microscopic— | | | | | | |
| Acid-fast stain | 96 | 283 | ... | 4 | 383 | 383 |

TABLE 9.—SUMMARY REPORT OF PENSACOLA LABORATORY FOR 1941. — Continued.

| | Positive | Negative | Doubtful | Unsat. | TOTAL | Grand Total |
|---|---|---|---|---|---|---|
| Venereal Diseases: | | | | | | |
| Gonorrhea— | | | | | | |
| Smears | 533 | 2,166 | ... | 16 | 2,715 | |
| Cultures | 78 | 665 | ... | 1 | 744 | |
| Ophthalmia | 3 | 34 | ... | ... | 37 | 3,496 |
| Syphilis— | | | | | | |
| Darkfield | 7 | 21 | ... | ... | 28 | 28 |
| Rabies: | | | | | | |
| Dogs | 1 | 3 | ... | ... | 4 | |
| Cats | ... | 1 | ... | 1 | 2 | 6 |
| Miscellaneous: | | | | | | |
| Smears | ... | 46 | ... | ... | 46 | |
| Cultures | ... | 6 | ... | ... | 6 | 52 |

PHOTOELECTRIC COLORIMETRIC DETERMINATIONS:

| | | |
|---|---|---|
| Hemoglobin | 181 | 181 |

| | No. Samples Examined | Total Number Tests Made | |
|---|---|---|---|
| WATER: | | | |
| Bacteriological | ... | 990 | 990 |
| Chemical— | | | |
| Water | 468 | ... | |
| MILK PRODUCTS: | | | |
| Milk | 705 | 1,254 | |
| Cream | 10 | 10 | |
| Ice Cream | 44 | 73 | |
| Chocolate milk | 16 | 32 | 1,369 |
| TOTAL | | | 15,496 |

TABLE 10. — REPORT OF PENSACOLA LABORATORY BY MONTHS FOR YEAR 1941.

| | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Intestinal Parasites | | | | | | | | | | | | | | |
| Hookworm: Pos. | 71 | 153 | 191 | 91 | 38 | 34 | 83 | 67 | 115 | 217 | 73 | | 1,133 | |
| Neg. | 144 | 373 | 406 | 304 | 248 | 229 | 259 | 241 | 512 | 887 | 780 | 26 | 4,409 | |
| Unsat. | 2 | 6 | | | 1 | | 1 | 2 | 7 | 18 | 10 | | 47 | |
| Ascaris | 1 | 2 | 8 | | | 1 | 5 | 6 | 3 | 6 | 5 | | 37 | |
| Oxyuris | | 1 | 4 | 3 | 2 | 1 | 2 | 6 | 1 | 5 | | | 25 | |
| Tapeworm | 2 | 1 | 2 | | 3 | | | | | 1 | | | 9 | |
| Trichiuris | | | 1 | | | | | 1 | | 1 | 1 | | 4 | 5,664 |
| Throat Specimens | | | | | | | | | | | | | | |
| Diphtheria: Pos. | | | | | | 1 | | 1 | 2 | | 1 | 21 | 26 | |
| Neg. | 20 | 29 | 34 | 24 | 16 | 38 | 31 | 38 | 22 | 43 | 31 | 68 | 394 | |
| Unsat. | 6 | 8 | | | | | | | | | | 2 | 16 | 436 |
| Vincent's Angina: | | | | | | | | | | | | | | |
| Pos. | 6 | 4 | 5 | 3 | 6 | 10 | 7 | 2 | 8 | | 3 | 3 | 57 | |
| Neg. | 9 | 15 | 12 | 12 | 18 | 29 | 18 | | 16 | 8 | | 2 | 139 | 196 |
| Streptococcus: | | | | | | | | | | | | | | |
| Pos. | 1 | 15 | 10 | 10 | | 8 | 1 | 6 | 3 | 1 | 7 | 3 | 65 | 65 |
| Malaria: Pos. | | | 3 | 3 | 6 | 4 | 4 | 4 | 1 | | 1 | 6 | 32 | |
| Neg. | 28 | 45 | 57 | 50 | 101 | 113 | 115 | 146 | 120 | 97 | 33 | 24 | 929 | |
| Unsat. | | | | | | | | | | | 1 | 2 | 3 | 964 |
| Agglutination Tests | | | | | | | | | | | | | | |
| Typhoid: | | | | | | | | | | | | | | |
| 'H' Agglutinins: | | | | | | | | | | | | | | |
| Pos. | 2 | 2 | 1 | 10 | 1 | | | 4 | 3 | | | | 23 | |
| Neg. | 20 | 35 | 41 | 57 | 77 | 68 | 84 | 83 | 30 | 18 | 6 | | 519 | |
| Partial | | 4 | 8 | 4 | 2 | | | | | | | | 18 | |
| Unsat. | | | | 1 | | 1 | | | | | | | 2 | 562 |
| 'O' Agglutinins: | | | | | | | | | | | | | | |
| Pos. | | | | 2 | | | | | | | | | 2 | |
| Neg. | 7 | 11 | 9 | 14 | 25 | 22 | 23 | 34 | 33 | 18 | 6 | | 202 | |
| Partial | | | | 3 | | 1 | | | | | | | 4 | 208 |

TABLE 10. — REPORT OF PENSACOLA LABORATORY BY MONTHS FOR YEAR 1941. — Continued.

| | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Paratyphoid A: | | | | | | | | | | | | | | |
| Pos. | | | | 5 | 2 | | | 1 | | | | | 8 | |
| Neg. | 7 | 9 | 10 | 13 | 25 | 24 | 18 | 27 | 12 | 16 | 5 | | 166 | |
| Partial | | | 1 | 1 | 1 | 1 | | | | | | | 4 | 178 |
| Paratyphoid B: | | | | | | | | | | | | | | |
| Pos. | | | | 5 | 2 | 2 | 3 | 5 | 3 | | | | 20 | |
| Neg. | 7 | 8 | 10 | 12 | 24 | 18 | 12 | 23 | 9 | 16 | 5 | | 144 | |
| Partial | | 1 | 1 | 2 | 2 | 5 | 3 | | | | | | 14 | 178 |
| Weil-Felix: Pos. | | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 6 | 7 | 2 | | 23 | |
| Neg. | 14 | 18 | 14 | 24 | 33 | 29 | 31 | 36 | 15 | 16 | 6 | | 236 | |
| Partial | | | | 1 | | | | | | | | | 1 | 260 |
| Brucella Abortus | | | | | | | | | | | | | | |
| Pos. | | | | | 1 | | 1 | | | | | | 2 | |
| Neg. | 8 | 7 | 10 | 15 | 22 | 25 | 13 | 35 | 12 | 20 | 5 | | 172 | |
| Partial | | | | 2 | | | | | | | | | 2 | 176 |
| P. Tularense: Neg. | | | 4 | 7 | 4 | 10 | 6 | 12 | 4 | 14 | 5 | | 66 | |
| Partial | | | 1 | | | | | | | | | | 1 | 67 |
| Cultures | | | | | | | | | | | | | | |
| Typhoid | | | | | | | | | | | | | | |
| Blood: Neg. | | | | | 1 | | | 1 | | 3 | | | 5 | |
| Stool & Urine: | | | | | | | | | | | | | | |
| Pos. | | | | 1 | | | | | | | | | 1 | |
| Neg. | 5 | 4 | 9 | 3 | 4 | 1 | 1 | | | | | | 27 | 28 |
| B. Dysentery: Pos. | | | | | | | | | 1 | | | | 1 | |
| Neg. | 1 | | | | | | 2 | | | | | | 3 | 4 |
| Tuberculosis: Pos. | 11 | 7 | 8 | 6 | 8 | 18 | 4 | 11 | 12 | 8 | 3 | | 96 | |
| Neg. | 42 | 33 | 31 | 42 | 14 | 36 | 14 | 19 | 14 | 31 | 5 | 2 | 283 | |
| Neg. | | | | | | | | 1 | | | 3 | | 4 | 383 |
| Unsat. | | | | | | | | | | | | | | |

TABLE 10. — REPORT OF PENSACOLA LABORATORY BY MONTHS FOR YEAR 1941. — Continued.

| | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gonorrhea Smears: | 25 | 30 | 48 | 36 | 42 | 32 | 38 | 42 | 53 | 68 | 71 | 48 | 533 | |
| Pos. | 182 | 182 | 155 | 122 | 137 | 168 | 198 | 291 | 180 | 176 | 204 | 171 | 2,166 | |
| Neg. | | | | 1 | | 1 | | | | | 13 | 1 | 16 | 2,715 |
| Unsat. | 2 | 1 | 5 | 4 | 14 | | 6 | 13 | 18 | 8 | 7 | | 78 | |
| Cultures: Pos. | 11 | 12 | 7 | 18 | 35 | 42 | 63 | 166 | 91 | 60 | 160 | | 665 | |
| Neg. | | | | | 1 | | | | | | | | 1 | 744 |
| Unsat. | | | 1 | | 2 | | | | | | | | 3 | |
| Ophthalmia: Pos. | 2 | 5 | 4 | 2 | 5 | 1 | 4 | 5 | 2 | 1 | 3 | | 34 | 37 |
| Neg. | 1 | | | | 1 | | 2 | 2 | 1 | | | | 7 | |
| Darkfield: Pos. | | | 2 | 2 | | 2 | 2 | 1 | 3 | 6 | 3 | | 21 | 28 |
| Rabies: | | | | | | | | | | | | | | |
| Dog: Pos. | | | 1 | | | | | | | | | | 1 | |
| Neg. | | 1 | | | | | | 1 | | | 1 | | 3 | |
| Cat: Neg. | 1 | | | | | | | | | | | | 1 | |
| Unsat. | | | | | | 1 | | | | | | | 1 | 6 |
| Hemoglobin | 1 | 40 | 64 | 27 | 21 | 16 | 12 | | | | | | 181 | 181 |
| Miscellaneous | 5 | 10 | 3 | 3 | 5 | 21 | 2 | 3 | | | | | 52 | 52 |
| Water: | | | | | | | | | | | | | | |
| Bacteriological | 56 | 38 | 23 | 32 | 18 | 87 | 180 | 240 | 106 | 130 | 80 | | 990 | 990 |
| Milk | 66 | 32 | 57 | 99 | 22 | 100 | 53 | 93 | 282 | 367 | 125 | | 1,296 | 1,296 |
| Ice Cream | 1 | 16 | 4 | 9 | | | 6 | 2 | 3 | 8 | 24 | | 73 | 73 |
| Total | 767 | 1,159 | 1,266 | 1,086 | 991 | 1,201 | 1,308 | 1,673 | 1,703 | 2,275 | 1,688 | 379 | 15,496 | 15,496 |

TABLE 11.—SUMMARY REPORT OF TALLAHASSEE LABORATORY FOR 1941.

| | Positive | Negative | Doubtful | Unsat. | TOTAL | Grand Total |
|---|---|---|---|---|---|---|
| Intestinal Parasites: | | | | | | |
| Total No. Specimens Examined | | | | | | 2,805 |
| Helminths ova—Specs. Exam. | | | | | 2,805 | |
| Hookworm | 891 | 1,855 | | 30 | | |
| Ascaris | 17 | | | | | |
| Oxyuris | 10 | | | | | |
| Tapeworm | 1 | | | | | |
| Trichiuris | 1 | | | | | |
| Throat Specimens: | | | | | | |
| Diphtheria—Cultures | 11 | 250 | | 8 | 269 | |
| Vincent's angina | 82 | 114 | | 1 | 197 | |
| Streptococcus | 78 | 87 | | 2 | 167 | 633 |
| Malaria: | | | | | | |
| Tertian | 254 | 2,533 | | 13 | 2,800 | |
| Estivo-autumnal | 26 | | | | 26 | 2,826 |
| Agglutination Tests: | | | | | | |
| Typhoid | 101 | 279 | 3 | 4 | 387 | |
| Para A | 17 | 145 | 4 | | 166 | |
| Para B | 39 | 118 | 7 | | 164 | |
| Brucella abortus | 4 | 244 | 1 | | 249 | |
| Weil-Felix | 28 | 190 | | | 218 | |
| Tularense | | 9 | | | 9 | 1,193 |
| Cultures: | | | | | | |
| Blood—Typhoid | 1 | 94 | | | 95 | |
| Stool and Urine Typhoid | 2 | 24 | | | 26 | |
| Stool—Bacillary Dysentery | 7 | 1 | | | 8 | 129 |
| Tuberculosis: | | | | | | |
| Microscopic—Acid-fast stain | 16 | 507 | | 1 | 524 | 524 |

TABLE 11.—Summary Report of Tallahassee Laboratory for 1941.—Continued

| | Positive | Negative | Doubtful | Unsat. | TOTAL | Grand Total |
|---|---|---|---|---|---|---|
| Venereal Diseases: | | | | | | |
| Gonorrhea— | | | | | | |
| Smears | 358 | 1,161 | | 19 | 1,538 | |
| Cultures | 21 | 211 | | | 232 | |
| Ophthalmia | 3 | 6 | | | 9 | 1,779 |
| Syphilis— | | | | | | |
| Darkfield | 5 | 26 | 1 | 3 | 35 | 35 |
| Chancroid | | 10 | | | 10 | 10 |
| Miscellaneous: | | | | | | |
| Smears | 16 | 41 | | | 57 | |
| Cultures | 23 | 36 | | | 59 | 116 |

PHOTOELECTRIC COLORIMETRIC DETERMINATIONS:

| | | |
|---|---|---|
| Hemoglobin | 657 | |
| Protein cerebrospinal fluid | 2 | 659 |

| | No. Samples Examined | Total Number Tests Made | |
|---|---|---|---|
| WATER: | | | |
| Bacteriological | 25 | 105 | 105 |
| MILK PRODUCTS: | | | |
| Milk | 373 | 1,496 | |
| Cream | 1 | 2 | |
| Chocolate milk | 4 | 8 | 1,506 |
| TOTAL | | | 12,320 |

TABLE 12. — Report of Tallahassee Laboratory by Months for Year 1941.

| | | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Intestinal Parasites | | | | | | | | | | | | | | | |
| Hookworm: | Pos. | 58 | 152 | 25 | 55 | 40 | 52 | 75 | 48 | 83 | 173 | 96 | 34 | 891 | |
| | Neg. | 99 | 196 | 92 | 103 | 130 | 119 | 157 | 177 | 166 | 338 | 177 | 101 | 1,855 | |
| | Unsat. | 2 | 1 | 5 | 3 | 2 | | | | 2 | 12 | 2 | 1 | 30 | |
| Ascaris | | 1 | | 3 | 10 | 2 | | | | 1 | | | | 17 | |
| Oxyuris | | | 2 | 1 | | | | 1 | 1 | 2 | 2 | | 1 | 10 | |
| Tapeworm | | | | | | | | | 1 | | | | | 1 | |
| Trichiuris | | | | | | | 1 | | | | | | | 1 | 2,805 |
| Throat Specimens | | | | | | | | | | | | | | | |
| Diphtheria: | Pos. | 1 | 1 | 1 | | 1 | | 1 | | 1 | 2 | 2 | 1 | 11 | |
| | Neg. | 6 | 27 | 28 | 37 | 32 | 12 | 22 | 14 | 15 | 6 | 28 | 23 | 250 | |
| | Unsat. | | | | 2 | | | 3 | | 1 | 1 | 1 | | 8 | 269 |
| Vincent's Angina | Pos. | 3 | 1 | 3 | 6 | 11 | 4 | 9 | 6 | 12 | 12 | 11 | 4 | 82 | |
| | Neg. | 4 | 15 | 18 | 13 | 20 | 7 | 7 | 3 | 8 | 6 | 6 | 7 | 114 | |
| | Unsat. | | | | | | | | 1 | | | | | 1 | 197 |
| Streptococcus | Pos. | 3 | 4 | 10 | 12 | 18 | 2 | 5 | | | | 8 | 16 | 78 | |
| | Neg. | 6 | 8 | 10 | 16 | 26 | 8 | 1 | 1 | 4 | 5 | 2 | | 87 | |
| | Unsat. | | | | | | | | | | | 2 | | 2 | 167 |
| Malaria: | Pos. | 1 | 8 | 8 | 31 | 33 | 20 | 56 | 8 | 54 | 43 | 13 | 5 | 280 | |
| | Neg. | 131 | 71 | 119 | 192 | 337 | 325 | 323 | 254 | 286 | 227 | 169 | 99 | 2,533 | |
| | Unsat. | | | | | | | 3 | 2 | 5 | 2 | 1 | | 13 | 2,826 |
| Agglutination Tests | | | | | | | | | | | | | | | |
| Typhoid: | Pos. | 3 | 4 | 2 | 7 | 6 | 7 | 2 | 6 | 12 | 36 | 11 | 5 | 101 | |
| | Neg. | 8 | 8 | 16 | 18 | 28 | 39 | 33 | 31 | 38 | 34 | 11 | 15 | 279 | |
| | Partial | | | 1 | | 1 | | 1 | | | | | | 3 | |
| | Unsat. | | | 1 | | | | | 3 | | | | | 4 | 387 |

TABLE 12.—REPORT OF TALLAHASSEE LABORATORY BY MONTHS FOR YEAR 1941.—Continued.

| | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Paratyphoid A: | | | | | | | | | | | | | | |
| Pos. | 1 | | 1 | 4 | 3 | 1 | | | 1 | 6 | | | 17 | |
| Neg. | 6 | 1 | 5 | 8 | 24 | 38 | 26 | 2 | 4 | 16 | 7 | 8 | 145 | |
| Partial | | | 1 | | | 3 | | | | | | | 4 | 166 |
| Paratyphoid B: | | | | | | | | | | | | | | |
| Pos. | | 1 | 1 | 2 | 7 | 10 | | | 4 | 13 | | 1 | 39 | |
| Neg. | 7 | | 5 | 10 | 16 | 29 | 25 | 2 | 1 | 9 | 7 | 7 | 118 | |
| Partial | | | 1 | | 2 | 3 | 1 | | | | | | 7 | 164 |
| Weil-Felix: Pos. | | | | | | | | 1 | 6 | 11 | 5 | 5 | 28 | |
| Neg. | 8 | 12 | 15 | 22 | 20 | 28 | 33 | 18 | 11 | 12 | 6 | 5 | 190 | 218 |
| Brucella Abortus | | | | | | | | | | | | | | |
| Pos. | | | | | | | | | 1 | 1 | 1 | 1 | 4 | |
| Neg. | 8 | 10 | 14 | 24 | 26 | 28 | 35 | 14 | 21 | 29 | 19 | 16 | 244 | |
| Partial | | | | | | | 1 | | | | | | 1 | 249 |
| P. Tularense: Neg. | | | | | | 1 | | 1 | | 4 | 2 | 1 | 9 | 9 |
| Cultures | | | | | | | | | | | | | | |
| Blood | | | | | | | | | | | | | | |
| Typhoid: Pos. | 1 | | | | | | | | | | | | 1 | |
| Neg. | 2 | | | | | | | | 50 | 30 | 11 | 1 | 94 | 95 |
| Stool & Urine | | | | | | | | | | | | | | |
| Typhoid: Pos. | | | | | | | | | 1 | | 1 | | 2 | |
| Neg. | | | | | | | | | 5 | 19 | | | 24 | 26 |
| B. Dysentery: Neg. | | | | | | | | | | 6 | 1 | | 7 | |
| Unsat. | | | | | | | | | | 1 | | | 1 | 8 |
| Tuberculosis: Pos. | | 1 | 1 | | | 1 | | 3 | 9 | 1 | | | 16 | |
| Neg. | 19 | 42 | 54 | 65 | 63 | 46 | 22 | 27 | 54 | 45 | 41 | 29 | 507 | |
| Unsat. | | | | | | | | | | 1 | | | 1 | 524 |

TABLE 12.—REPORT OF TALLAHASSEE LABORATORY BY MONTHS FOR YEAR 1941.—Continued.

| | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Total | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gonorrhea Smears: | | | | | | | | | | | | | | |
| Pos. | 21 | 19 | 18 | 13 | 13 | 18 | 18 | 12 | 31 | 75 | 44 | 76 | 358 | |
| Neg. | 54 | 56 | 76 | 77 | 120 | 77 | 108 | 60 | 78 | 123 | 168 | 164 | 1,161 | |
| Unsat. | | 2 | | 4 | | | | 5 | 2 | 1 | 3 | 2 | 19 | 1,538 |
| Cultures: Pos. | | | | | 1 | | 1 | | 5 | 8 | 3 | 3 | 21 | |
| Neg. | | 1 | | 12 | 27 | 2 | 4 | | 12 | 45 | 64 | 44 | 211 | 232 |
| Ophthalmia: Pos. | | 1 | | 1 | | | 1 | | | | | | 3 | |
| Neg. | 2 | 2 | | 1 | | | 1 | | | | | | 6 | 9 |
| Darkfield: Pos. | | | | | | | | 2 | 2 | | 1 | | 5 | |
| Neg. | | 1 | 2 | | | | 1 | 1 | 1 | 8 | 11 | 1 | 26 | |
| Doubtful | | | | | | | | | | | 1 | | 1 | |
| Unsat. | | | | | | | 1 | | | | | 2 | 3 | 35 |
| Hemoglobin | 45 | 28 | 35 | 62 | 64 | 79 | 75 | 37 | 54 | 85 | 54 | 39 | 657 | 657 |
| Protein—Spinal Fluid | | | 1 | | | 1 | | | | | | | 2 | 2 |
| Water: | | | | | | | | | | | | | | |
| Bacteriological | 8 | 33 | | 8 | 3 | 22 | | 2 | 18 | 3 | | 8 | 105 | 105 |
| Milk | 125 | 123 | 158 | 112 | 132 | 115 | 98 | 128 | 145 | 87 | 136 | 147 | 1,506 | 1,506 |
| Miscellaneous | 3 | 10 | 12 | 6 | 9 | 11 | 3 | 2 | 8 | 6 | 22 | 34 | 126 | 126 |
| Total | 636 | 841 | 743 | 936 | 1,217 | 1,109 | 1,153 | 873 | 1,214 | 1,544 | 1,148 | 906 | 12,320 | 12,320 |

TABLE 13. — BIOLOGICALS DISTRIBUTED DURING 1941.

| | Diphtheria Antitoxin | | | Schick | | Toxoid | Typhoid Vaccine | | Vaccine Virus | Anti-Rabic | Tetrachlor-Ethylene | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 20,000 Units | 10,000 Units | 5,000 Units | 10's Test | 50's Test | 10cc Vials | 1cc Vials | 20cc Vials | 10's Pkgs. | VIRUS Pkgs. | CAPSULES 8 min. | 16min. |
| JANUARY | | 42 | | 50 | 103 | 400 | 6 | 358 | 444 | 21 | 2,056 | 2,156 |
| FEBRUARY | | 14 | 6 | 6 | 80 | 372 | | 661 | 311 | 23 | 2,525 | 1,953 |
| MARCH | 8 | 38 | 2 | 21 | 31 | 270 | 7 | 373 | 372 | 6 | 1,750 | 1,225 |
| APRIL | 2 | 47 | | 37 | 58 | 327 | 18 | 1,075 | 582 | 32 | 2,737 | 2,375 |
| MAY | | 19 | | 26 | 61 | 340 | | 370 | 250 | 10 | 1,807 | 1,712 |
| JUNE | 3 | 14 | | 10 | 37 | 230 | | 435 | 290 | 39 | 1,606 | 1,610 |
| JULY | | 28 | 6 | | 41 | 145 | | 544 | 324 | 36 | 850 | 1,351 |
| AUGUST | 5 | 34 | 2 | 1 | 27 | 248 | | 481 | 333 | 41 | 725 | 950 |
| SEPTEMBER | 5 | 41 | 7 | | 50 | 290 | | 296 | 392 | 19 | 587 | 549 |
| OCTOBER | | 71 | 8 | 5 | 153 | 627 | | 411 | 395 | 39 | 3,125 | 2,362 |
| NOVEMBER | | 74 | 2 | 21 | 150 | 594 | | 392 | 353 | 10 | 1,225 | 1,425 |
| DECEMBER | | 76 | 37 | | 41 | 410 | | 439 | 330 | 42 | 2,067 | 1,507 |
| TOTAL | 23 | 498 | 70 | 177 | 832 | 4,253 | 31 | 5,835 | 4,376 | 318 | 21,060 | 19,175 |

# HEALTH EDUCATION

ELIZABETH BOHNENBERGER, *Director*

As Florida widens the territory and increases the population covered by full-time health service administered with the maximum of efficiency, the health problems of the people will decrease in ratio. The outstanding health problems of the state—those which take the highest toll in lives, in disability because of illness, and so in money—are those diseases which have a public health aspect and for which the practice of public health has a remedy. These health problems which take such a high toll of Florida's population are malaria, hookworm, tuberculosis, syphilis, malnutrition, typhoid, and maternal and infant deaths. There are other diseases which cause death or disability, several of them with public health aspects, but insofar as a health education program is concerned, it is feasible to plan the bulk of educational effort around these outstanding Florida health problems.

Decrease in the extent of these health problems and the final extinction of some of them will be accomplished not with one method or one approach, but with various methods and various approaches. Economic planning applicable throughout the nation is one necessary step; wider distribution of medical and hospital services, another.

An adult population, informed concerning health practices and needs to insure the highest possible personal, family and community health and a school population, living, studying and learning the "whys" and "hows" of health achievement and maintenance, is necessary. Within these two inclusive groups are all the various special groups which because of their vocation have a special and influential bearing on the whole problem of public health. Physicians, nurses, and dentists form these special groups; likewise, school teachers, public health workers, state and local officials, because of their potentialities for leadership and their money appropriating powers.

Health departments attempt to reach all groups of the population. Some portions of the population must be reached and persuaded to adopt certain health practices in order to insure maximum personal, home and community health through their own efforts, and through adequate understanding and support of the health services. Other portions of the population must of necessity be reached through the rendering of actual health service to the individual. Health education has a place in all these efforts. It is one part of the whole public health service and so permeates all health service as at times to be as indistinguishable and yet as important as the steel which reinforces a concrete bridge.

The function of a bureau of health education is to assist in reinforcing all health services with the thread of education for those served. Its function is also at times and for certain ends to plan independently and work closely with all allied services, such as the public schools, medical and nursing professions, public welfare agencies, and community organizations.

## SCHOOL HEALTH EDUCATION

The school health program which received impetus and direction in 1939 through a cooperative plan of the State Board of Health, State Department of Education, Florida Medical Association, and Florida Congress of Parents and Teachers has been more solidly linked with the community health program in those counties having full-time health service. County health officers have been encouraged to use Bulletin No. 4 "Plans for Florida's School Health Program" which outlined the school health policies and to incorporate its recommendations into their school health service program. Study of the bulletin in the staff education program has been urged and carried out in many counties. Pamphlet material to supplement health instruction, study units and reference lists to aid the teacher, health films and other visual aids were used widely in an effort to make the school population aware of Florida's health needs.

In this connection several films on health subjects were purchased by the State Board of Health and made directly available to school teachers through the General Extension Division of the University of Florida. Although duplicate prints of these films were already on loan from the Bureau of Health Education, it was thought these particular films would have a much wider circulation among the schools and their organizations who use the General Extension Division's film library extensively.

The importance of including health instruction in the curriculum of those individuals who plan to enter the teaching profession gained further stimulation throughout the year. Reference packets of health literature and source materials were furnished to college students in health education classes and to teachers attending summer sessions, and reference service was given them from the facilities of the State Board of Health Library.

Again this year consultant service of State Board of Health personnel was arranged by the Bureau in connection with the health education workshops conducted at the Florida State College for Women and the Florida Agricultural and Mechanical College during the summer sessions. Through talks and lectures the teacher's responsibility in observing signs of communicable diseases, rendering first aid, testing eyesight and hearing, was stressed and the students were shown how to correlate this knowledge with their health instruction program.

A collection of books and pamphlets on health subjects was obtained by the Bureau of Health Education for the Library of the Florida A and M College and this teacher training institution for Negroes now has a very adequate collection of reference literature on health.

There is imperative need for a full-time consultant on school health problems in the Bureau of Health Education and it is planned to add such a person to the staff in the coming year. A person able to devote full time to the coordination of the county health program with the school health program and to work closely with the State Department of Education and with the teacher-training institutions could do much to make the plans for Florida's school health program a reality.

## PUBLIC HEALTH EDUCATION

The full-time county health unit forms an important link between the education program of the State Board of Health and the people of Florida. Through the county health officer and his staff, direction is given to the distribution of educational materials, films, exhibits, and posters. A better understanding of a community's needs and problems is woven in with the actual rendering of health service to each individual. Supplies of pamphlets on communicable diseases and other health problems were furnished each health unit in quantities sufficient for wide distribution at civic meetings, clinics, and in schools. Source materials and lists were also sent in order to aid them in planning their health education programs; posters and exhibits designed to show their health problems were planned for posting in store windows and exhibition at county fairs.

Evaluation of radio programs, health films, informational pamphlets, newspaper publicity, exhibits and posters was constant and efforts were made to use each where it would be most effective. The Bureau has long felt the need for a central producing agency, such as the U. S. Public Health Service and Children's Bureau, for certain of these health education tools. Radio programs expertly planned and reproduced on discs for distribution throughout the state is one example. Posters and pamphlets could be more skillfully produced on such a scale. Throughout 1941 advantage has been taken by the Bureau in disseminating knowledge of health education materials available for the use of the county health units.

The film service of the Bureau was expanded and the film collection now consists of the best films available on health problems peculiar to Florida. These films are loaned to county health units, as well as to schools, colleges, and civic organizations throughout the state. Records of attendance kept show that 76,388 people saw these health films during 1941. Through the cooperation of military authorities films on the subjects of syphilis and gonorrhea were shown at military camps and navy bases. The theater owners and managers throughout the state were also cooperative in showing 35mm. health films at their local theaters.

As a more specialized effort of public health education the Bureau assisted in the state-wide plan to include all local parent-teacher associations and women's clubs in a study program on the Florida problem of maternal and child health. The plan was made in cooperation with the Florida Medical Association, the State Federation of Women's Clubs, and the Florida Congress of Parents and Teachers. Arrangements were made whereby local pediatricians and obstetricians, as well as State Board of Health physicians, spoke before the clubs. Motion pictures relating to these problems were shown at all the meetings and literature was distributed after the discussion period.

A Nine Point Program for Public Health was submitted at the annual meeting of the Florida Federation of Women's Clubs and this plan was adopted at the state meeting in October.

The Bureau gave assistance to various civic clubs and local chamber of commerce groups in preparing special programs on health. Many civic organizations have become interested in the venereal disease problem especially and the Bureau has aided these people in the showing of films and distribution of literature.

### MEDICAL POSTGRADUATE COURSES

The Bureau of Health Education again gave assistance to the Medical Postgraduate Course Committee of the Florida Medical Association by supervising the printing and mailing of the programs, planning newspaper publicity, and furnishing a motion picture projector and operator for the Graduate Short Course for Physicians which is held annually in Jacksonville.

It is planned next year that the Bureau of Health Education and the Division of Venereal Disease Control will offer a scholarship to one practicing physician in each county medical society, in order to stimulate the interest of general practitioners in the venereal diseases. This plan has been discussed with the Venereal Disease Committee of the Florida Medical Association and the cooperation of the Committee has been enthusiastically assured.

The new film on the treatment of syphilis produced by the U. S. Public Health Service was purchased by the Bureau and shown to all county medical societies in the state. The Bureau supervised the scheduling of the film and worked with the Venereal Disease Committee of the Florida Medical Association in interesting the local societies in the showing of the film. Supplementary literature on the venereal diseases was sent throughout the year to all the physicians in the state.

For the past several years a one week Seminar for Negro Physicians, sponsored by the Florida State Board of Health and the Florida Tuberculosis and Health Association and assisted by the Negro medical association, has been held in Jacksonville. Visiting lecturers are obtained from among the foremost Negro physicians in the United States and their subjects included the Florida problems of obstetrics, pediatrics, tuberculosis and venereal diseases among the Negro population. These seminars have been highly valued by the Negro physicians and their interest has been evidenced by the increasing number of physicians attending each year.

The Bureau of Health Education participated in the 1941 seminar both financially and through membership on the planning committee. The physicians attending the seminar were invited to visit the State Board of Health Library.

The Bureau of Health Education continued to be of assistance to all other bureaus of the State Board of Health in the educational aspects of their programs. Plans and supplementary materials for staff education were worked out with several bureaus; visual aids, including charts, graphs, and posters were supplied to other bureaus who displayed them throughout the state in connection with their programs.

The Bureau of Health Education edits and distributes the annual report of the State Board of Health and *Florida Health Notes,* the monthly publication. As another means of staff education the Bureau also issues a mimeographed and illustrated bulletin entitled *Your News* which contains information valuable to all State Board of Health and county health unit personnel. The Bureau likewise has given assistance in the preparation of papers, news articles, radio talks and interviews.

### STATE BOARD OF HEALTH LIBRARY

The State Board of Health Library, established in 1932, now contains 7,600 volumes. The collection includes ten year files of the representative medical journals and textbooks, treatises, and other books relating to medicine and public health. A bound file of the *American Medical Association Journal* from 1896 to date is included, and of the public health journals the Library has, in most cases, a complete file. A complete series of the *Index-Catalogue of the Library of the Surgeon General's Office* is owned by the Library and *Quarterly Cumulative Index Medicus* is on file from

1920 to date. Thus, the Library not only owns a valuable collection of medical and public health journals and books, but through the complete indices to medical literature, has access to all publications on file in the Army Medical Library, Washington, D. C., and the other outstanding medical libraries of the nation.

The Library currently subscribes to 140 medical and public health journals. A trained librarian is in charge and library service is given free of cost to all physicians, dentists, nurses and public health workers throughout the state. This service includes the preparation of bibliographies, searches of medical literature and assistance in editing papers and reports. The collection of the Library is circulating, and physicians, dentists, nurses and all public health workers are encouraged to borrow from the Library. Books, magazines and reprints are mailed to all sections of Florida. The facilities of the Library are also used in the preparation of plans and materials for staff education, both in the central office and in the county health units.

During 1941 considerable progress was made toward the goal of establishing "branch" libraries in all the county health units. With the use of funds from the Division of Venereal Disease Control and the Bureau of Maternal and Child Health standard textbooks relating to these fields were sent for permanent deposit in the county health unit libraries.

Valuable collections of reprints and books relating to malaria were presented to the Library during 1941 by Dr. Mark F. Boyd and Dr. John E. Elmendorf, Jr. of the Rockefeller Foundation. These are in the process of being classified and catalogued and when this is completed the collection will form an important part of the malaria section of the Library.

The Florida Medical Association continued its gift of current medical journals received by the Association on an exchange basis. Together with the gifts of medical books and papers from many Florida physicians, this continues to be an indication of the value set on the State Board of Health Library by the medical profession of Florida.

The library of the Florida State Dental Society is deposited as a temporary part of the State Board of Health Library collection and is available to all Florida dentists.

The Library was originally established with a grant from the Rockefeller Foundation with the hope and expectation that it would eventually become a center of medical literature for the state. This commendable and practicable plan nears realization each year. There is need for more financial support, more room, and more full-time personnel, but even proceeding on the present basis, the real need for such a medical center will bring this about.